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SCHOOL DISEASES *

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There is no doubt that children of school age contract such diseases as measles, scarlet fever and diphtheria much more frequently than older persons. Sharp difference of opinion exists, however, as to the actual part played by school attendance in the transmission of these diseases. Some observers maintain that while the maladies in question are diseases of school children, they are not properly to be regarded as school diseases. From this standpoint diphtheria, scarlet fever and the like are especially prevalent among school children, not because school conditions favor their transmission, but simply because children of school age are more susceptible to infection. On the other side are those who hold that school attendance plays a large part if not the chief part in the dissemination of infectious disease among groups of children of susceptible ages.

Viewed broadly, there is much to favor the latter opinion. All that has been learned about the modes of transmission of certain diseases, notably diphtheria, indicates that the taking of a large number of children out from their restricted family and neighborhood relationships and bringing them into contact with a much larger group will increase the opportunities for infection. In some other fields of investigation this fact is well established. The advent of a typhoid carrier in a military encampment will give rise to more cases of disease than if the carrier had remained by his own fireside in contact with relatively few persons. In the same way, it may be assumed that a convalescent or carrier attending a school has a wider sphere of influence than in his own block; that is, he may be the means of conveying the spark of contagion to a larger circle.

As regards specific opportunities for infection furnished by the school, it must be admitted that while the slate, the common drinking-cup and the roller-towel are fast passing away, sufficient facilities for the transfer of disease germs still exist in the friendly exchange of pocket handkerchiefs, lip-moistened lead-pencils, chewing-gum and the like. One danger peculiarly difficult to guard against is the discharge of minute droplets of spray from the mouth or nose in the act of sneezing, coughing or speaking. These "infectious droplets" may float about in the air for some minutes and, as shown by experiment, can be borne by air-currents to a distance of several feet. In the opinion of some investigators air-borne droplets are the principal factors in the spread of tuberculosis.

The school playground, as well as the schoolroom, must be considered in its bearing on the subject of school diseases. The significance of school attendance on the public health side lies not only in the assembling of children in a room, but also in the bringing into more or less intimate association a number of children who would otherwise not have met at all. Increasing the number of associates must necessarily increase the chances of infection.

There can, on the whole, be no doubt that school attendance favors in some degree the transmission of disease. The real point at issue is the importance of school infection as compared with other sources of infection. If the cases of infectious disease for which the school can be held responsible are relatively few in number in comparison with the cases contracted through other channels, then it is manifestly wrong to speak of such diseases as school diseases; they are rather diseases to which school children are liable because of their age predisposition. The controversy is therefore over the actual proportion of cases contracted through the agency of the school.

Here there is a wide divergence of opinion. Some observers point to the fact that cases of diphtheria and scarlet fever show a marked increase in the autumn when the schools open and an equally definite decrease in the summer when the schools are closed, as evidence of the importance of school infection. Others regard such fluctuations as merely the expression of seasonal influences, with which school closings and openings happen to coincide. Close analysis of the statistics is thought to support the latter view. Kerr[1] in London and Chapin[2] in Providence, R. I., as the result of statistical studies, believe that diphtheria and scarlet fever are rarely spread in schools and that the great mass of cases originate independently of school conditions. After a careful examination of the weekly number of reported cases of diphtheria and scarlet fever in Chicago from 1908 to 1912, I have been unable to detect any well-marked variation in the number of cases at the dates of the opening and closing of schools in September and June, or at the time of the Christmas and spring holidays. Other investigators, handling other statistical data, have reached opposite conclusions. In some cases the Christmas and Easter holidays have been observed to cause apparently a diminution in the number of diphtheria cases.[3]

Such observations, however, are beset with many sources of error. The whole inquiry undoubtedly presents serious statistical difficulties. Attention, for example, has been drawn to the fact that both diphtheria and scarlet fever cases in children grouped according to

* Read in part before the Department of Child Hygiene of the National Educational Association, July 11, 1912.

1. Kerr: Rep. Med. Off. (Education), London, 1909, p. 63.
2. Chapin: Am. Jour. Pub. Hyg., 1910, xx, 813.
3. Parker: Tr. Epidemiol. Soc., London, 1896, New Series, xvi, 240.

age gradually increase in number up to 4 or 5 years of age and then begin to fall off. As Chapin expresses it: "It is remarkable, if school attendance has sufficient influence to cause the autumnal increase in these diseases as is so often alleged, that it has not sufficient influence at least to keep up the disease after children reach the age when they begin to go to school."[4] It is possible, however, that factors operative in early life but disappearing later, such as age susceptibility and great liability to milk-borne infection, may in some degree be replaced later on by the dangers of school attendance. In other words, scarlet fever and diphtheria may be much higher in children of school age than they would be but for the influence of school attendance in multiplying chances for infection. Chapin's tables show that there were in Providence, during a period of twenty-one years, 813 diphtheria and 1,171 scarlet fever cases reported in 4-year-old children as contrasted with 565 cases of diphtheria and 868 of scarlet fever in 8-year-old children. Such figures do not necessarily prove, however, that the number of cases in 8-year-old children is not in part or even in large part due to school attendance.

We need not assume that conditions are alike in all infectious diseases. Measles, scarlet fever and diphtheria seem to stand each on a somewhat different footing. Measles appears to be generally regarded by school officials as commonly contracted at school. Unfortunately, few exact statistical studies have been made. In a recent epidemic reported by Raffle,[5] 778 cases occurred in a susceptible school population of 2,180; these might, of course, have been contracted either at school or at home. After the schools were closed, making allowance for the incubation period, only seventy-five cases occurred among 1,400 susceptible children. There are obvious sources of error in statistics compiled in this way, but Raffle's results are at least suggestive.

According to Kingsford,[6] in Liverpool the connection between school attendance and measles is very clear. In 1909 and 1910, in a study of the occurrence of measles in individual school children, there was a history of a recent case in the house in which the child lived in only 1.5 per cent. of the school cases. Kingsford also states that "where there is a susceptible school child in the family, it is found in practically every instance that this child is the first to contract the disease and is the one chiefly responsible for handing it on to the younger members of the family who do not attend school." Other observations, like those of Royer on an epidemic of measles in the Haverford School,[7] tend to emphasize the importance of school attendance in spreading this disease, but further and more comprehensive studies directed toward a definite end are needed.

Scarlet fever seems to be less generally considered a school disease. Many investigations point to milk-supply as a prominent factor in the spread of scarlet fever, and there is a growing disbelief in the importance of school infection: D'Ewart,[8] on the basis of a careful school canvass in Manchester, England, has recently questioned the responsibility of schools for the spread of scarlet fever. He points out that in Manchester summer closing of the schools can hardly account for the summer drop in scarlet fever cases, since in summer the number of children in the city is reduced by about 37 per cent. while the scarlet fever decrease is only 17 per cent. As in Providence and some other cities, so in Manchester there is no jump in scarlet fever cases at the age when school-going begins. While this fact is suggestive it is, as already pointed out, not a conclusive argument against the importance of school infection, since a rapid waning in the number of cases due to infected milk might completely mask a slighter increase due to school infection. The question is to what extent school-going keeps the cases at a higher level than would otherwise be maintained. D'Ewart, after surveying the whole ground, assigns little weight to school attendance and states that "when the series of cases is complete, evidence will be produced showing that the bulk of the cases occurring in school children can have nothing directly to do with school." Such instances, however, as the one described by Roach[9] show the important part sometimes played by the school in the spread of scarlet fever.

In both scarlet fever and measles, unfortunately, we have not yet discovered the specific cause and know little or nothing about modes of infection and point of entrance. This uncertainty robs even careful studies of a large part of their value and reduces much of our discussion of these two diseases to the level of conjecture.

Diphtheria, in this respect, stands on quite a different basis from scarlet fever and measles. Here we have a mass of exact and detailed bacteriologic observations which we might suppose would enable us to approach the problem with fuller understanding. It is somewhat surprising to find here also the same difference in opinion as to the importance of school infection. Kerr[1] and Chapin[2] apparently regard diphtheria as being, like scarlet fever, little affected by school attendance. Hüls,[10] fortified by eleven years' experience as school physician, goes so far as to say flatly that "diphtheria is not spread by schools," and Versmann,[11] while admitting that occasional outbreaks of school diphtheria occur, believes that these are exceptional. Macdonald,[12] after studying a recent outbreak, declares that "all school carriers were found to be intimately associated at play with other cases and carriers, and mere class-room proximity was found to be of little importance in spreading the disease."

On the other hand a considerable number of investigators have recorded outbreaks of diphtheria in which the connection with school attendance could not be doubted. Many of these epidemics are so typical of diphtheria outbreaks in general as to arouse suspicion that the same factors are at work in a large proportion of the uninvestigated cases. In England, Thorne-Thorne[13] long ago called attention to the influence of school attendance on diphtheria and cited numerous instances in which schools were plainly implicated in the diffusion of infection. Thorne-Thorne also points out the coincidence between the putting into effect of the compulsory education act in 1870 and the increase in diphtheria prevalence which began in England and Wales at about that time. It is interesting to note that although Thorne-Thorne made his observations before precise bacteriologic methods were in use he clearly recognizes on epidemiologic grounds the part played by carriers in disseminating infection.

4. Chapin: Am. Jour. Pub. Hyg., 1910, xx, 816.
5. Raffle: Lancet, London, Feb. 3, 1912, p. 294.
6. Kingsford: Med. Officer, London, 1912, vii, 237.
7. Report of Commissioner of Health of Pennsylvania, 1909, p. 219.
8. D'Ewart: Med. Officer, London, March 2, 1912; abstr. in Am. Jour. Pub. Health, 1912, ii, 313.
9. Roach: Am. Jour. Pub. Health, 1912, ii, 450.
10. Hüls: Ztschr. f. Schulgsndhtspflg., 1911, No. 3; cited by Goldstein: Vrtljschr. f. gerichtl. Med., 1912, xliii, 150B.
11. Versmann: Ztschr. f. Schulgsndhtspflg., 1910, No. 3; cited by Goldstein: No. 18.
12. Macdonald: Lancet, London, March 25, 1911, p. 795.
13. Thorne-Thorne: Diphtheria, London, Macmillan & Co., 1891.

Ward and Henderson[14] in this country, Vervoort[15] in Amsterdam, Seligmann[16] and Frank[17] in Germany and many others have shown the reality of school infection in definite instances. Frank, for example, in studying an epidemic of diphtheria in 1910-1911 among the pupils of a girls' school in Charlottenburg found that conveyance of infection must have taken place in the school since the children were recruited from all parts of the city, some of them coming from districts where at the time no diphtheria cases were known to exist. In 1909 the number of children in this school developing diphtheria amounted to only 0.7 per cent., which was about the average for the other schools of the city, while in 1910-1911 the number of diphtheria cases increased to 14 per cent. Detailed investigation of the school by classes showed in every instance a certain relation between the number of new cases and the number of diphtheria carriers; most of the cases occurred in the classes in which diphtheria carriers were detected. In those classes in which carriers were lacking there were only one or two cases or none at all. Among other recent writers Goldstein[18] has laid stress on the importance of the healthy diphtheria carrier in spreading disease. Westenhoeffen[19] points out that in the Berlin epidemic of 1911-12 the schools played the chief rôle in the dissemination of infection.

The discovery of the part played by the healthy germ-carrier throws light on the probable origin of certain obscure cases of infection. A child in a family in which a case of diphtheria exists may bear in its throat living diphtheria bacilli without manifesting any sign of disease. If this child is allowed to enter school a playmate may acquire the bacillus without in its turn becoming definitely ill. This second child, however, may take the germ home and pass it on to a non-school-going child in the same family who then may develop a typical case of diphtheria. In this and even more circuitous fashion a diphtheria bacillus may be handed around until the original source is difficult to trace. Variations in the virulence of the germ and in the favorableness of the soil in which it lodges determine the actual development of a "case." If a large number of children in a school happen to be in a susceptible state from climatic or other reasons, or if a diphtheria bacillus introduced into the school happens to have unusual infective power then a school epidemic will result.

Methods of control of school and institutional outbreaks of diphtheria are therefore coming to be focused on the detection and exclusion of the carrier. Summary disinfection of innocent chairs and tables and enforced school closure are in general found to be less effective than the discovery and isolation of the living bearer of diphtheria bacilli. When school attendance is regulated by bacteriologic findings school epidemics quickly subside.

Although we must freely admit that for diphtheria, at all events, evidence of infection through school attendance is entirely convincing we are as yet not in possession of sufficient information as to the relative importance of this source. Our knowledge of the mode of spread of scarlet fever and measles is in a still more imperfect condition. It would seem desirable if through the auspices of this Association an extensive and searching investigation under expert supervision might be made of this question. To what extent and under what conditions are the infectious diseases of childhood spread by school attendance? At present in combating the spread of infectious disease without adequate knowledge of the channels of infection we are in danger of wasting our strength in misdirected effort, and the conservation of human effort is certainly one of the most desirable forms of conservation. Experience has shown us that not all theoretically possible methods of preventing infection are equally efficacious in practice. For each disease we should aim to adopt special methods carefully devised to produce the maximum effect with the smallest amount of injury or disturbance to the normal relations of human life. To this end it is essential to discover the ways in which infectious disease is commonly spread as well as the ways in which it might conceivably be spread. The abolition of the common drinking-cup is a highly desirable procedure even if only an occasional case of infectious disease is prevented, but has anyone ever put on record a measurable diminution in disease in a school after the introduction of bubbling fountains? In point of fact we do not know to what extent the various influences summed up under school attendance are factors in the dissemination of infectious diseases. The question should be investigated.

14. Ward and Henderson: California State Jour. Med., August, 1907.
15. Vervoort: Hyg. Rundsch., 1908, xviii, 1459.
16. Seligmann: Ztschr. f. Hyg., 1911, lxx, 35.
17. Frank: Hyg. Rundsch., 1912, xxii, 325.
18. Goldstein: Vrtljschr. f. gerichtl. Med., 1912, xliii, 136.
19. Westenhoeffen, M.: Berl. klin. Wchnschr., Jan. 8, 1912, p. 91.

METHODS OF WATER PURIFICATION FOR LARGE CITIES

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All water supplied to cities originates in the rainfall. When rain-drops are formed by the cooling of air saturated with moisture, the water is free from mineral and organic matter and bacteria, and is therefore soft, colorless and pure. But as the drops fall through the air they take up its dust, which is both mineral and organic, and wash the air. If the rain is heavy enough, this washing makes the air clear and bright.

When the rain-drops strike the earth's surface, one part of the water is immediately evaporated, one is absorbed by vegetation, one runs off the surface into streams or open water courses, and one percolates into the ground until it reaches the ground water-table or level, which finally discharges subterraneously along lines of least resistance into the nearest open watercourses or at springs.

The portions of the rainfall which are available for city water-supplies are, first, the one which percolates into the ground to be temporarily stored before discharging into open watercourses or springs, and second, the one which enters the streams directly over the surface.

We may say, therefore, that the water-supplies for large cities must be obtained either from ground water through springs or wells, or from surface water in flowing streams.

SPRINGS AND WELLS

The quality of ground waters to be used for potable purposes depends on the character of the soils and rocks through which the water percolates after it has fallen on the surface as rain.

Some minerals can be readily dissolved and taken up by the water, and others are practically insoluble. Some waters may contain excessive quantities of salt, sulphur, manganese, iron or other objectionable minerals, which,

if in large quantities and in solution, completely unfit these waters for potable purposes. Other waters may have large quantities of lime which make them appear very bright but also make them hard.

If these solutions are sufficient in quantity to make the waters objectionable for potable purposes, and if no better alternative supplies are available, they should be subjected to some system of purification. Not all mineral pollutions can as yet be economically removed. The only removals which are successfully carried out in the practice of to-day are chiefly those of the carbonates and sulphates of lime and magnesia, which make waters hard, and those of excessive quantities of iron, which unfit water chiefly for laundry use.

The hardness of waters is of two kinds, temporary and permanent. Temporary hardness is usually caused by the carbonates and the permanent hardness by the sulphates of lime and magnesium. The former can best be removed by a solution of freshly burnt lime, or lime-water. The bicarbonates are changed into monocarbonates by the hydrate of lime uniting with the half-bound carbon dioxid which is combined as a bicarbonate in the hard water. The resulting insoluble monocarbonates deposit as a fine powder.

Permanent hardness can be removed by adding sodium carbonate. The soda in this case unites with the sulphates dissolved in the water which results in the formation of neutral and inert sodium sulphate, and the insoluble carbonate, which is precipitated as a fine white powder. The largest water-softening plants on our continent are those in Columbus, Ohio, and Winnipeg, Manitoba.

The softest and most palatable ground waters are found in regions where the rocks are granite, gneiss, sandstones and slates. Limestone regions yield hard waters.

Waters containing much iron must be subjected to a process of deferrization before they can be used. The presence of iron in ground water is generally due to the presence of organic matter, which forms soluble ferrous carbonates. Alluvial plains are the usual sources of such waters. We find them on Cape Cod, Long Island and the Jersey shore. Northern Germany, including Berlin, has such waters. They are clear when first drawn, but soon become cloudy by the absorption of oxygen from the air and the consequent formation of ferric oxid.

The treatment of iron waters as at Rockaway, N. Y., at Berlin and a number of large North German cities, is simply by aeration, which causes oxidation and produces iron oxid, which is readily precipitated and removed by filtering the water through sand.

SURFACE STREAMS

The quality of surface waters furnished to large cities depends, first, on the condition of the air through which the rain has fallen; second, on the character of the surface over which it flows, and third, on the method of artificial purification which it may have received.

While Nature has purified the water issuing from springs, which are the overflows from the accumulated ground waters, it does not with equal thoroughness purify the water when it flows on the surface in open streams. On the contrary, much fresh and even more serious pollution may be added. Such pollution may be mineral or organic.

Mineral pollutions are chiefly from trade wastes. It is proper to prohibit the discharge of such wastes into streams which are to serve as water-supplies, because it is sometimes exceedingly difficult to give them a proper treatment for that purpose.

Surface washings bring into the streams sometimes large quantities of clay and fine sand. Witness the alluvial streams in the Missouri and Colorado river valleys. But such pollutions can be readily removed by treatment.

The organic pollution is by far the more objectionable one. Not only does dead animal and vegetable matter give the water an objectionable taste and appearance, but it may harbor disease germs and may transport them to great distances. Objectionable tastes and odors are given waters by a number of low forms of life, constituting the plankton, the growth of which in rivers, ponds, or lake waters, is favored by a warm temperature, an abundance of food material, colloidal or dissolved, and other causes.

Water supplied to large cities must be free from objectionable mineral and organic pollution and, most of all, from pathogenic bacteria. It must be palatable and soft, clear and limpid.

WATER PURIFICATION

As surface waters available for large cities rarely have all of these qualities, it is necessary to purify them. Even mountain streams of excellent appearance and taste are no exception to this rule. While they may be free from objectionable mineral and crude organic pollution, there is no guarantee that even with policed watersheds there may not be pathogenic bacteria brought on them by beast or bird. We are therefore approaching the time, already reached in England and Germany, when it will be required to purify all surface waters and then to keep them from exposure to light, heat and dust and to conduct them by subsurface and enclosed channels to the points of consumption.

Four methods of water purification for large cities are now in successful use: (1) slow sand filtration; (2) rapid mechanical filtration; (3) coagulation with precipitation, and storage in large reservoirs, and (4) disinfection by hypochlorites of lime and soda, by ozone and by ultraviolet rays.

1. *Slow Sand Filtration.*—This method is the most common and, it may be added, also the best where it is available. Since first introduced in England it has been practiced for almost a century.

Sand filtration, if the works are properly designed and operated, removes substantially all bacteria and suspended matter from the water. The result is clear and limpid water free from disease germs. The essentials of the process are, first, a preparatory treatment, so that the filters can do their best, and second, the filtration process itself. In exceptional cases there may be some other adjunct to the treatment.

The preparatory treatment depends largely on the character of the water and of the filters to receive it. The water may be fairly clear, as generally in our Northern states and where sand and silicious rocks prevail; or it may be muddy, as in the lower parts of the Missouri and Mississippi valleys, and where the rain can wash clay and aluminous soils into the river. It may also be polluted from agricultural lands and by city sewage.

The preparatory treatments will accordingly differ. When plain sedimentation is sufficient this is the cheapest process. It allows the bulk of the suspended matter to deposit and the more or less clarified water to go to the filters for further treatment. When plain deposition is not sufficient, then it is practicable to add a small

amount of coagulant, particularly when the suspended matter is of a finely divided and colloidal nature. The effect of the coagulant is to draw together the fine particles into larger ones and thus produce a better precipitation and a clearer water.

When the water is more or less strongly polluted with sewage from agricultural or inhabited districts, the preparatory treatment should endeavor, if practicable, to destroy all pathogenic bacteria, so that they may not enter the filters, there perhaps to be nourished and propagated. For this purpose coagulation and precipitation are quite effective, because the descending and depositing solid particles carry with them to the bottom a high percentage of the bacteria, just as rain-drops clarify a dust-laden or hazy atmosphere.

A disinfectant added during the process of preliminary treatment is generally not advisable, because it destroys or injures in part the efficiency of the filter by reducing its bacterial life and activity. If a disinfectant is advisable, it is better to treat the water after filtration.

The preparatory treatment may also be a prefiltration, that is, a rapid coarse filtration. A coarse filter is added to take out the coarser material. To do this is particularly excellent for lake waters, where a large amount of the coarser suspended matter consists of plankton or small organic life, which would not be thrown down by precipitation. Plankton rapidly clogs the final filters.

The final filters are used both for bacterial removal and for clarification of the water. The work is done partly by bacterial activity and partly by straining. A bacterial slime is gradually formed on the upper surface of the sand filter, but to some extent on the surface of the sand grains for a short distance below. This slime acts partly as a strainer, through which the water must pass, which causes clarification, and partly as a nitrifier through the bacterial life which inhabits it and by which the dissolved organic matter is decomposed.

The bacterial slime further holds back by its straining action the suspended particles which gradually produce what has been called, here as well as in Germany, the *Schmutzdecke* or *Schlammdecke*, and by this accumulation the *Decke* increases in thickness and compactness until the water requires too much pressure or depth in order to pass through. At such times the filters must be cleaned. For ordinary or fairly clear raw waters this cleaning is required about once a month, and there are now in use several mechanical means for this cleaning.

In a few instances the attempt has been made to procure a higher purification, and also a further safeguard against the passage of bacteria through the filters, by having a double filtration through fine sand. It seems now that a greater economy and efficiency may just as well be secured by a system of preparatory prefiltration, properly adapted to final filters and connected with them. Each part of the plant has then a definite specific duty to perform, for which it can be specially designed and operated.

The rate of filtration through the slow sand-filters varies according to the character of the water and of the sand grains. The usual quantity of water which passes through a filter is equal to a depth of from 7 to 10 feet per day. In other words, it requires an acre of sand filter to purify from two and one-half to three million gallons per day. A well-prepared water can be passed through at greater velocities, varying from one and one-half to twice these rates.

2. *Rapid Mechanical Filtration.*—The large areas of sand-filters required for large cities, for which there is sometimes neither land nor money available, frequently cause a not unnatural hesitancy to provide at all for filtration. It has also been found that the fine colloidal particles of a clay-polluted water are not sufficiently removed by the slow sand-filters to produce a clear and limpid water, nor was the color of some waters, caused by vegetable stain, such as occurs in timber regions, entirely removed by them.

These facts caused the rapid mechanical filters to be invented and introduced into America. They have been extensively and successfully used in a number of our cities, of which Cincinnati, Columbus and New Orleans, and the groups of small cities supplied by the East Jersey Water Company and the Hackensack Water Company near New York, are the largest and best examples.

The rapidity with which the water could pass through these filters was increased to a depth of 400 feet or less a day. The possibility of securing this greater speed without injuring efficiency was caused by artificially producing a deeper and stronger slimy coating to extend over the entire filter surface. This coating was not produced naturally by bacterial growth but artificially by a chemical coagulant, causing the formation of a flocculent suspended matter by the addition of a small quantity of aluminum sulphate (New Orleans, East Jersey and Hackensack), or of lime and iron (Cincinnati).

This flocculent matter covering the sand grains, which must be larger than in the slow sand-filters to permit of the greater speed of filtration, acts chiefly as a strainer. The rapidity of passage allows of a lesser bacterial activity and purification, and nitrates are therefore much less in amount than in the slow sand-filters.

With good design and construction, and with good operation, these two classes of filters can and do remove about equally well both pathogenic and ordinary bacteria.

The results in reducing typhoid fever have been found to be about the same. The filters in Cincinnati are equal in efficiency in this respect to any slow sand-filters in our country.

Owing to the speed with which the water passes through the filter, it will be evident that the amount of retained suspended matter in a given time will be correspondingly increased. As the speed is forty or fifty times as great as in the slow sand-filter, the *Schlammdecke* will be ready for removal, on the average, in at least one-fortieth or one-fiftieth of the time. These filters, therefore, require frequent cleaning, which is accomplished by a reversal of the current, and by efficient mechanical means of cleaning; also sometimes by air washing, by all of which the sand grains for the entire depth of the filter are turned over and over and in so doing clean each other by attrition.

A word should be entered here regarding the difference between the so-called gravity and pressure filters. The former permit the waters to pass by gravity and always with the same velocity. This conserves the integrity of the film produced by the coagulants and is far more efficient, as far as a removal of bacteria is concerned, than when the water passes through the filter under a high and particularly varying pressure, which is likely to cause a rupture of the film. Pressure filters, if economical, are satisfactory for obtaining clear water for manufacturing purposes. For potable water filtration they are not so good as the gravity filters and are now seldom used for that purpose.

The rapid filters as well as the slow filters require a preliminary treatment. But this refers more to the addition and thorough mixture of the coagulating material with the water than to the removal of coarse suspended matter.

It should also be added that, as in the former case, a disinfecting treatment is less effective and more costly as a preliminary than as a final treatment of the water after filtration.

In addition to the removal of bacterial and fine suspended matter the rapid filters have the advantage of removing also the usual stain found in many waters, by the use chiefly of alum and salts of iron.

The use of such coagulating materials was at first strongly objected to by the medical profession on account of the fear that they might enter the human body with the water in a raw state and produce objectionable pathologic conditions. Long experience, however, has shown that practically no evidence of such ill effects has been recorded wherever the filters have been properly designed and built, and afterward carefully operated.

It should be added that in a properly operated plant no raw alum is found in the water leaving the filter. This will be the case when the water has sufficient alkalinity, which allows the alum to be decomposed and thereafter disappear as such in the water. If the waters to be filtered are very soft, it is therefore customary to add some lime with the alum.

On the whole, rapid mechanical filters require a somewhat higher order of men for operation than the slow sand-filters, because they are somewhat more complex and the filter rate is greater, which therefore requires somewhat more skill and closer attention.

3. *Coagulation with Precipitation, and Storage in Large Reservoirs.*—It is sometimes preferable and more economical to postpone filtration of a surface water, when a sufficient security against disease conveyance can be obtained by a less complex and costly plant. This is the case, for instance, at St. Louis. The Missouri River water carries much fine clay in suspension and the bacteria contained in the water will by adhesive force approach and cling to the clay particles instead of remaining free in the water. Therefore by an effective precipitation of the clay particles it is practicable to obtain a water which may be quite healthful although previously perhaps dangerously polluted. By thus precipitating the solid matter the water will not always be made bright and limpid, because some fine colloidal matter is frequently still left in it. When a still better quality of water is desired, it always remains practicable to add a filtration plant by which to secure it.

The investigations of Dr. A. C. Houston, Director of Water Examination, Metropolitan Water Board, London, have shown that large storage reservoirs are quite efficient for the removal of bacteria. Not only do subsiding particles of suspended matter attract floating bacteria and carry them down for deposit, but it is asserted that in clear waters, not very much disturbed, the bacteria themselves will subside, and that therefore large reservoirs and long storage are a good sanitary measure.

I do not know whether or not similar observations have been made in the large reservoirs in our country. The Wachusett reservoir of the Boston supply has been available for such observations, and a still larger reservoir for the New York supply from the Catskills will be available.

It will be interesting to determine whether or not pathogenic bacteria die during the long retention in such reservoirs, whether they are deposited on the bottom or not, and further interesting to discover as to whether or not in such cases filtration may be omitted.

4. *Disinfection by Hypochlorites of Lime and Soda, by Ozone and by Ultraviolet Rays.*—As mentioned above, the object of purifying the water-supply of large cities is to make it healthful, clear, limpid and palatable. Its healthfulness is controlled, in the cases under consideration, by its freedom from pathogenic organisms.

When waters are not and perhaps cannot be filtered, and even when filtered under perhaps abnormal conditions, the waters can be rendered healthful by destroying the dangerous bacteria through a separate treatment of the water for this purpose.

The disinfection of water has been under consideration for many years, and the last word has not yet been said. It has been proposed to utilize for this purpose the bactericidal effect of ozone, of the ultraviolet rays and of the hypochlorites of lime and soda.

It is clear that by any of these materials or processes bacteria will be killed. But a practical use for large water-supplies is possible only when the expense is reasonable and there is a satisfactory assurance of obtaining the desired effect.

As yet the applications of ozone and of the ultraviolet rays have not yet been developed sufficiently to secure economical processes.

The ozone process has been used in large cities, notably Wiesbaden, Germany, but has been abandoned after a year or two on account of cost and of not being sufficiently reliable. It is more difficult to obtain a thorough mixture of the water with ozone, which enters it as gas bubbles and soon loses its efficiency, than with a material entering either finely dispersed or as a solution, such as hypochlorite, which retains its efficiency for a much longer time.

The ultraviolet ray process is being studied and applied in Europe, but while its reliability appears to be greater than that of the ozone process, it appears at present that the cost may be too great.

For these reasons the hypochlorite treatments, being more economical at present, are now much more extensively used. Within the last few years, since the process was first practically developed for the water-supply of Boonton, N. J., more than a hundred cities in our country use it. Its efficiency has been successfully demonstrated in several cities, where it was rapidly installed at the outbreak of typhoid epidemics. Allowing for the lapse of the period of incubation, it was found that new cases, if not traceable to secondary infection, did not occur (Minneapolis and other cities). In still other cities where the treatment was introduced, the usual slight autumnal rise in the typhoid curve was practically eliminated (Montreal).

CONCLUSION

This brief account of the methods of water purification for large cities should give us the comfortable assurance that we have reached a stage of development in this branch of public service at which it becomes possible to furnish healthful water-supplies at reasonable cost, whether they are obtained from subterranean or from surface sources.

170 Broadway.

Clinical vs. Pathologic Diagnosis.—Diagnosis, however, is half the victory in the battle with disease, and from the point of view of the patient is of more importance than some piece of fragmentary tissue or rare microscopic specimen preserved for exhibition with a report on its pathology if she survive, or, be she ever so philanthropic, the chance of its being added to a museum for the inspection of others when she is dead.—H. Macnaughton Jones in *Clin. Jour.*

EPIDIDYMOTOMY

A PLEA FOR A RATIONAL TREATMENT OF EPIDIDYMITIS

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The incidence of epididymitis in gonorrhea depends on so many known and unknown factors that a discussion of them is likely to be long and unproductive. Experienced observers speak of epididymitis in a wide range of incidence. Bevan of Chicago says that "about 20 per cent. of gonorrheal attacks are complicated with an involvement of the epididymis." In a series of 159 cases of gonorrhea treated in one of our large military hospitals during the past year, epididymitis occurred twelve times, i. e., in about 7.3 per cent. of the cases. Whatever factors effect this apparent variation in incidence, certainly this painful disease occurs with sufficient frequency to make a study of its successful management important to the genito-urinary surgeon.

The pathology of epididymitis is not intricate and is well set down in all the standard text-books. The teaching is that, after the invasion of the epididymis by the gonorrheal infection, abscess or cyst formation is the rule, although these collections are generally small and, if resolution takes place, the pus or fluid is absorbed. I make my plea for a rational surgical treatment on the foregoing statement which appears to be generally admitted by authors on the subject.

The appropriate treatment of this disease is obvious, if epididymitis is recognized as an acute pus infection of the epididymal coils. It is true that the suppuration usually remains in a small focus, and in many instances is eventually absorbed; but this termination sometimes takes place in an infected appendix, gall-bladder or fallopian tube, yet a surgeon will scarcely abide such an event in these organs. Laying aside, then, the difference in life risk, it would appear that there is just as much surgical sense in applying a poultice over an infected gall-bladder as there is in applying one over an infected focus in the epididymis.

The books speak of an acute epididymitis due to instrumentation of the urethra in which no pyogenic organisms are concerned. It appears to me that an infiltrated globus minor is rather a remote expression of urethral trauma in the absence of any infectious agent. In a considerable experience with instrumentation of the urethra and bladder, I have never seen this type of epididymitis. The common variety, that due to gonorrhea or some other infection of the urethra, demands the same surgical attack as a pus focus elsewhere in the body, and that is incision and drainage.

Hagner of Washington, D. C., first invited attention to the excellent results of epididymotomy. Hagner's operation, described fully in text-books, seems formidable, and its rather complicated technic is most applicable to incipient cases. The principle which Hagner developed, however, can be applied to all cases, whether incipient or advanced. Early experiment with the Hagner operation convinced me of the value of epididymotomy and, later experience with a simpler technic has convinced me that any treatment of epididymitis, other than operative, is unscientific, irrational and a compromise with ignorance.

I have performed the following simple operation in sixteen consecutive cases of epididymitis, some being incipient and some advanced:

Technic: Preparation consists of dry shaving of pubis and scrotum; one application of 2 per cent. alcoholic solution of iodin, followed by alcohol; primary ether anesthesia. Incision three-fourths inch in length in integument is made over most prominent part of infiltrated mass, down to the dense fibrous covering of the epididymis. Puncture is made of the tunica vaginalis testis from the nearest wound angle with blunt needle or tenotome. The dense fibrous covering over the major or minor body is then incised in the long axis of the tumor; this is accompanied by a marked lessening of resistance. The point of a slender hemostat is thrust into the mass with the idea of entering the pus focus. The blades of the forceps are slowly opened to effect a separation of tissue without undue tearing. The pus or fluid will escape at this stage if proper entry of the infected area is made. A 1-inch length of No. 3 rubber tubing is inserted into the bottom of the wound and fixed with a suture. Copious dressing and snug application of a jumbo suspensory completes the procedure which should consume about two minutes of time.

Local anesthesia is inadvisable on account of the risk of sloughing, especially in advanced cases in which the integument already partakes of the severe underlying inflammatory process. I would prefer to operate with no anesthesia if a general anesthetic were declined or if there were any contra-indications to its use. Dry shaving of the parts is done to render the iodin an effective skin disinfectant. A stronger solution of iodin than 2 per cent. will sometimes blister the scrotum even after the excess is removed with alcohol. Puncture of the tunica vaginalis for the acute hydrocele is done before the proper covering of the epididymis is invaded to avoid the risk of carrying infection into this sac. The hydrocele, nearly always present to a degree, is due to circulatory disturbance generally and not at all likely to be due to actual infection. Occasionally, smart hemorrhage follows breaking into the inflamed epididymis, but this quickly ceases. Pus will be found in all advanced cases and the fluid escaping in incipient cases will always contain gonococci. The drainage-tube is left in place forty-eight hours and two subsequent dressings usually suffice. One of the most striking results of this simple operation is the immediate and absolute relief from pain which is often expressed by the patient in extravagant terms of satisfaction. Indeed, this alone justifies the slight operative risk.

In my small series of cases, the following beneficial changes invariably took place, in the order named: (1) sudden and permanent relief from pain; (2) defervescence in forty-eight hours; (3) rapid reduction in the size of the inflammatory mass; (4) early healing of the operation wound without suppuration, except in cases in which the process already had proceeded to formidable abscess formation; (5) early convalescence without relapse.

Some observers think that epididymotomy effects a too deliberate accomplishment of sterility when it is applied to bilateral cases, believing that after cutting across the lumen of the epididymal coil, the passage of spermatozoa is impossible; others think that the spermatozoa may find new channels through the scar tissue and find exit by diapedesis or migration. In my series of sixteen cases, one only was bilateral, and in this case bilateral epididymotomy was performed in the firm belief that the slight scar tissue which remains after operation is less an obstruction to the passage of spermatozoa than the dense fibrous "ball" which so often remains as a permanent relic of a penalty paid to folly.

Benzler's figures seem to prove that 41.7 per cent. of all bilateral cases of epididymitis result in sterility.

Statistics are not now available to prove whether epididymotomy produces sterility when applied in every bilateral case, but since the preponderant number of cases are unilateral, and since after epididymotomy such rapid recovery occurs in every instance, the collective gain in shortening the course of *all* cases offsets the disadvantage of an occasional sterilization.

DEVELOPMENTS IN THE SKIN-GRAFTING OPERATION FOR CANCER OF THE BREAST

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It has been my custom every year or two to request our patients operated on for mammary cancer and living in or near Baltimore to come on certain mornings to the surgical clinic of the Johns Hopkins University in order that we may observe the ultimate result, particularly with reference to the function of the arm.

For about sixteen years our practice has been to cover the fresh defect, made as small as feasible in various ways, with large Thiersch grafts. The available skin was tucked high into the armpit in order to cover the axillary vessels, to obliterate the dead space under the clavicle, and to elevate to the highest possible point the axillary fornix.

The tip of the axillary flap was usually cut away. Notwithstanding this precaution a little necrosis of the badly nourished flap was not infrequently observed, and as a consequence there occurred an occasional but rare infection of the wound, and in the location where it might be productive of great harm, namely, on the confines of the subclavicular dead space which we had attempted to obliterate in the ordinary way, by tucking up the flap and holding it in place with soft packs of gauze. Infection of this space not only delayed healing but also prevented primary union of the tucked-in skin to the wall of the thorax, to the subclavius muscle and to the subclavian and axillary vessels. In such event the healing of the dead space was by granulation, and the resulting cicatricial tissue in the axillary fornix caused or accentuated the swelling of the extremity and, more or less, prevented the free movements of the arm. Infection, furthermore, influenced unfavorably the healing of the skin-grafts.

In plastic operations the danger of the necrosis is, of course, greater than in the skin-grafting operations, because in the former the circulation of the flaps is still further impaired both by the added incisions and by the increased traction which is exercised in the effort to cover the raw surface with skin. It is expecting too much of a thin flap deprived of its fat and submitted to the pressure of a gauze pack sufficient to keep the flap in place and to obliterate the axillary dead space, always to maintain its circulation to the very edge.

With few exceptions the patients have been well satisfied with the resulting usefulness of the arm. Such restrictions of movement as they suffered from did not prevent them from dressing their hair and performing household work. But in the majority of cases, on abducting the arm beyond 90 degrees, a point would ultimately be reached, as the elbow approached the head, when a band of skin and connective tissue was seen to tug between the chest wall and the shoulder. I have repeatedly said to my patients that if this band were divided and the resulting defect covered by a skin-graft the desired motion would be permitted unless prohibited by changes in the shoulder-joint which might in time have taken place. In no instance, however, has the patient considered herself sufficiently handicapped by the restriction in the movement to care to submit to the proposed operation.

For some years we have been trying to remedy the defects of the method and have succeeded in such measure that I consider it worth while to describe the modifications which our original operation has undergone.

The incision down the arm, made shorter and shorter, was finally abandoned. The vertical cut to the clavicle is made as short as feasible and when considerable skin has been removed above is omitted.

Not infrequently the only incision of the skin is the circular one surrounding the tumor, but as a rule the one or the other of the vertical incisions has been made. By means of the two vertical incisions, one above and one below, the dissection of the axilla is, of course, facilitated. Thus the triangular flap has been definitely abolished.

The skin of the outer flap between the two vertical incisions is utilized primarily to cover completely, without any tension whatever, and redundantly the vessels of the axilla. The edge of this flap is stitched by interrupted, buried sutures of very fine silk to the fascia just below the first rib in such way that the skin partly envelops the large vessels. Then, along the entire circumference of the wound, the free edge of the skin is sutured to the underlying structures of the chest wall, the wound being made as small as desirable in the process of closure, and tension on the upper or axillary part of the outer flap assiduously avoided. Considerable traction may, however, be exercised on the mesial flap and on the lower portion of the outer flap. The form and position of the resulting defect may be seen for a given case in the accompanying illustrations. Whatever the size and shape of the grafted defect, it should usually extend to the top of the axillary fornix. Thus the thoracic or inner wall of the apex of the axilla is always lined with skin-grafts.

The arm is adducted 90 or more degrees during the stitching of the wound and is not included in the dressing. Only the gentlest pressure is exerted by the bandage holding in place the gauze handkerchiefs which should be evenly applied with solicitous care. Particularly to be avoided is the placing of a wedge of gauze in the axillary fornix, and the using of this as a kind of fulcrum to be bridged over by the adducted arm. Drainage is unnecessary.

Movements of the arm as free as possible are encouraged after the second day. These may be executed without apprehension if the wound is closed in the manner indicated.

REASONS FOR SKIN-GRAFTING IN OPERATIONS FOR CANCER OF THE BREAST

1. An almost unlimited amount of skin may be removed. From the observations made at the surgical clinic of the Johns Hopkins University it would seem that the results have been better in the cases in which larger areas of the skin were removed. According to the statistics of our clinic as prepared by Dr. Joseph C. Bloodgood, it would seem that of the various operators those have had the best results who make a practice of giving the tumor the widest berth in making the incision of the skin. These surgeons may, however, perform a more thorough operation in other respects.

Undoubtedly we often remove an unnecessarily large amount of skin; but the patient is not in the least incon-

venienced thereby, nor is the operation delayed on this account, for the reason that the defect is covered with Thiersch grafts, on the healing of which one can rely almost absolutely. Nothing is gained, therefore, by saving skin which, either because it is too close to the cancer or by reason of impairment of its circulation, is questionable.

Whatever a given surgeon's views may be in general as to the amount of skin which should be removed for

Fig. 1.—Before operation. The carcinoma infiltrated the entire gland. The skin incision corresponded quite accurately to the margin of the breast except below, where it was carried beyond it.

Fig. 2.—Three days after operation. Silver-foil (high lights) on the skin along the inner and upper margins of the wound.

the cure of mammary cancer, he is certain at times to be confronted with cases which clearly demand excision over a very wide area. In such event he will, I believe, find the procedure which I have advocated of definite value.

It is better to remove too much skin than too little, for the mistake of excising an insufficient quantity is quite fatal to the patient's chances of recovery. Whether the grafted area is large or small the time required for the healing of the wound, and the range of motion permitted to the arm are the same.

2. Skin-grafts present a definite obstacle to the dissemination of carcinomatous metastases. I have seen cutaneous recurrences along the margins of the grafted area spreading with great rapidity in the skin, extend over the opposite breast, to the back and over the abdomen to the pelvis without involvement of the grafted area except by encroachment at the edges. In one such case in the course of two years, the complete mammary operation having been done on both sides and the supra-clavicular operation on the right side, the entire skin of the front of the thorax, of the right and part of the left side of the abdomen and of the right back nearly to the middle line was removed and the

Fig. 3.—Six weeks after operation. To show the great freedom of motion.

Fig. 4.—Six weeks after operation. Arm at right angle to body. Shows subclavicular fold of redundant skin.

denuded area grafted, and yet at no point did the disease invade the grafted area except here and there for a few lines at the margins.

In certain cases, as is well known, there is a particular and, it may be, early tendency of the cancer to disseminate itself in the skin and to develop the cancer en cuirasse. I formerly regarded the prognosis in these cases as quite hopeless, but my experience in comparatively recent years encourages me to feel that there may

be a much better chance for some of these patients than is generally believed. In the case referred to immediately above in which from repeated operations the woman had become actually flayed over the entire front, sides and part of the back of the thorax and over the abdomen down to the crest of the right ilium, there was at autopsy[1] no microscopic evidence of cancer in the glands or viscera or elsewhere. Dr. Winternitz, however, who made a most painstaking post-mortem examination, reported that microscopically one of the mesenteric glands and a piece of tissue removed from the cicatricial

Fig. 5.—The redundant fold of skin is held up by the fingers. The skin has been stitched to the underlying muscles at the margin of the area to be grafted, the apex of which corresponds to the lower border of the first rib.

tissue of the right supraclavicular region showed involvement. At the operation above the right clavicle, performed about one year before the patient's death, it was observed that the carcinoma had invaded the tissues outside of the lymphatic glands and was extending into the sheaths of the nerve trunks of the brachial plexus. It was surprising, we thought, that the recurrence in this region had not manifested itself promptly.

It occurred to me that it might be well in certain cases evidencing this special tendency to skin metastasis—to regionary recurrence confined to the skin—to surround the denuded and grafted area, more or less completely and as might seem indicated, by a kind of moat with the hope that by such expedient the disease, should it continue to spread in the skin, might be confined to the region intervening between the two grafted areas—between the main wound and the moat placed at some distance from it.

The moat is formed by the excision of a narrow strip of skin with its underlying fat and loose fascia. Possibly the gap caused by the mere incision through the skin down to the sheaths of the muscles might suffice.

If the moat is made at the time of the primary operation the grafts should be of the Thiersch variety and covered with silver-foil. If the grafting of the moat has for any reason to be deferred—to be made secondarily on a granulating surface—the Reverdin grafts are preferable.

1. The patient died from a general infection contracted a few days after her temporary discharge from the hospital and as the result, probably, of a very fatiguing railway journey.

Silver-foil is not a suitable dressing for grafts placed on a granulating or infected surface; a piece of gutta-percha tissue riddled with holes like a porous plaster or, as suggested and practiced by Dr. Staige Davis, a rubber mesh, or some other permeable non-adherable covering should be employed. But when the surface is not infected and it is desirable to leave the dressing undisturbed for a week or more, as after operations for mammary cancer, the silver-foil has proved at our clinic to be an admirable dressing for the grafts.

3. Recurrences in the deeper planes may be promptly detected under the thin, grafted skin. These should be burnt away, down to the pleura if necessary, with the actual cautery. When the defect is covered by normal skin, as in an incomplete or in a plastic operation, not only is the underlying recurrence concealed for an indefinite period, but also the transferred skin with its lymphatic channels brought from a distance, when it becomes involved, aids in the dissemination of the disease.

We disapprove of the clever suggestion to cover the defect by the transfer of the opposite breast; less perhaps on account of the more obvious objections to it than because with this procedure recurrences in the denuded area would be so deeply covered that they could not be discovered promptly, or, perhaps, not until the transplanted breast had become involved.

One may be compelled to resort to a plastic operation when the tumor has extended so far into the axilla as to

Fig. 6.—The redundant fold of skin being retracted. The defect has been covered by the Thiersch grafts.

make it necessary to provide skin from elsewhere to assist in covering the axillary vessels. Under these circumstances a more or less vertical cut up the neck on the opposite side has sufficed to release the skin which seemed available.

4. The inner or thoracic wall of the axilla being lined to the extreme apex with grafts, the skin of the outer flap may be utilized, *in redundant fashion*, for covering the axillary vessels, for obliterating the subclavian dead space and for elevating the axillary fornix.

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ULCER OF THE BLADDER

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Although simple solitary ulcer of the bladder is regarded as a very rare affection, the history of two cases[1] that have recently come under my observation would seem to indicate that this condition is not infrequently overlooked. Both patients had been examined with the cystoscope before consulting me, but the cause of the most striking symptom, hematuria, had not been discovered. Doubtless this lesion was not recognized because of its location in the posterior vesical wall, a region that is frequently neglected or poorly examined in a routine inspection of the bladder.

The first case that I wish to report was interesting because of the sudden onset of the hematuria and the alarming amount of blood that was evacuated with each urination.

CASE 1.—*History.*—Mrs. M. L. consulted me on July 3, 1911, because of frequency of urination, and because of the large amount of blood voided in the urine. She had given birth to two children, and, at the time, was in her third pregnancy. One and a half years previously, she had had an attack of inflammation of the bladder with considerable pain on urination, and frequency. After her last confinement, there seemed to have been some blood in the urine for a short time. She had never had any symptoms of renal colic and had apparently recovered from the single attack of cystitis when, about three months before, urgency and frequency of micturition returned. These symptoms existed on and off up to the date of consultation. For several days preceding, alarming amounts of blood had been voided with the urine, which led the patient to consult me.

Examination.—On catheterization of the bladder about 4 ounces of very thick, dark, red-brown urine were evacuated. There had evidently been a copious hemorrhage, and cystoscopic examination at once revealed the source of the hematuria. In the posterior wall, to the left and behind the left ureter, there was an irregular, triangular superficial ulcer somewhat less than 1 cm. in length, and 6 or 7 mm. in width. The floor of the ulcer was covered with blood-clots, discolored fringes of which were floating free in the distending fluid. The mucous membrane, in the immediate neighborhood, was distinctly injected and the vascular markings were obliterated. The edges of the ulcer were barely raised, there being none of the evidences of proliferation that are characteristic of carcinoma, nor any of the polypoid masses of bullous edema so conspicuous in tuberculosis. Less than a centimeter removed from the region of the ulcer, however, there was a small area which presented an appearance not unlike that of certain lesions of vesical tuberculosis. Here there were about a dozen small rounded protuberances that appeared to be solid and macroscopically indistinguishable from miliary tubercles. Their appearance was quite different from that described as bullous edema, the individual rounded protuberances being much smaller, dark red, not translucent, and arising from almost normal mucous membrane. A diagnosis of simple chronic ulcer was made, for nowhere else in the bladder could any lesions be discovered; the ureteral orifices were negative; the catheterized specimens indicated the absence of renal involvement; tubercle bacilli were absent and inoculations into guinea-pigs were negative.

Treatment and Course.—On Aug. 3, 1911, a single treatment with the fulguration method was given, the patient having had intermittent hematuria ever since the last examination. Only very mild cauterization was employed and the polypoid area was included in the treatment. Three days later, the urine was clear for the first time, and on August 10, only a very few red blood-cells could be found in the centrifuged specimen. September 9, cystoscopic examination showed a small exudate covering the region of the ulcer, the mucous membrane being retracted and plicated in the immediate neighborhood (Fig. 1).

December 28, another cystoscopy demonstrated the region of the ulcer to be absolutely devoid of any sign of a lesion of continuity. The radiating scar seen at a previous examination was again found lying in an area of hyperemia. The bladder was free from the congestion which was notable at the first two examinations. Jan. 30, 1912, the patient was again seen in the office, and was found completely cured. There was no trace of the lesion, the site of the ulcer being occupied by somewhat plicated and retracted mucous membrane.

In short, it was a case of simple chronic solitary ulcer of the bladder in a young woman whose history suggested no other etiologic factor than a single attack of cystitis. There was no diffuse cystitis at the time of the examination, or any evidence of tuberculosis, unless the minute polypoid excrescences be regarded as suspicious of tuberculous infection.

The prompt beneficial result of very mild sparking with the Oudin current speaks strongly in favor of the application of this method of treatment for vesical ulceration.[2] Indeed, a single cauterization with the high-frequency current was sufficient to effect a cure within a period of about six weeks.

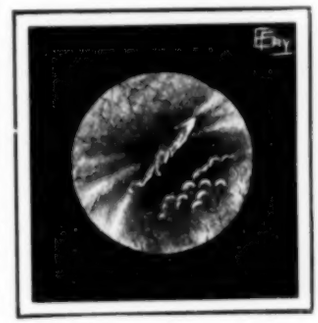

Fig. 1.—Healing ulcer in Case 1.

The history of the second patient serves well to emphasize the chronic course of certain cases of ulcer of the bladder. Although the etiology of the affection could not be determined with certainty, it is likely that traumatism with a cystoscope was a factor.

CASE 2.—*History.*—S. K. consulted me Jan. 5, 1911, because of the presence of blood in the urine. He had never had any vesical symptoms until after a cystoscopy three years previously. In the winter of 1908, after a prolonged endoscopical examination in a dispensary, copious hematuria ensued and the patient was confined to his bed for a week. The bladder was put at rest, at that time, according to the patient's story, by means of an indwelling catheter, but, in spite of constant treatment for many months after the time of the initial bleeding, the act of micturition was always attended with the evacuation of small amounts of blood. Urination seems also to have been more frequent than normal, being repeated every two to two and a half hours during the day and once at night. Except for the hematuria and a slight amount of discomfort during the act of micturition, there were no symptoms during the past two years.

Examination.—The patient was a well-nourished man who presented no evidences of the loss of large amounts of blood. The urine, however, was clouded by reason of its blood content, and the end of the act of micturition was attended with the expression of a few drops of blood. Cystoscopic examination and ureteral catheterization showed that the kidneys were not the seat of the hematuria. At the left of the

1. Since this paper was put in type three additional cases have come under my observation. The last two were chronic callous ulcers, and a most remarkable and rapid cure was effected in both instances by excision of the ulcer through my operating cystoscope with a special punch-forceps.

2. More recent experiences with cases of simple solitary ulcer of the chronic callous type have induced me to use only the method of excision, for cauterization by fulguration in such instances is of no avail.

trigon, the mucous membrane of the bladder was pale, grayish-white, and almost devoid of any vascular markings. This area gave the impression of an old scar. In the posterosuperior wall of the bladder, somewhat to the left of the midline, there was a large ragged ulcer measuring somewhat over 1 cm. in its largest diameter, and 0.5 to 1 cm. in width, varying in different places. Except at one spot, where there was a deep excavation (as if the bladder wall had been treated with a punch) there seemed to be a rather shallow loss of substance. The edges of the ulcer were not overhanging, in places being concealed by necrotic shreds. The surrounding mucous membrane presented no evidence of hypertrophy or inflammatory proliferation, there being, however, considerable injection. The general appearance was that of a superficial callous ulcer, lying in a hyperemic area of the bladder, its surface for the most part covered with recently clotted blood, but in places obscured by a grayish exudate. About 1 cm. removed from the deepest portion of the ulcer, an aggregation of tubercle-like bodies (the counterpart of those seen in Case 1) could be distinctly recognized.

With a view to making a more careful study of the patient's condition, he was admitted to the Har Moriah Hospital, where he remained for a week. During this time, the terminal hematuria did not abate in severity, although strict rest in bed had been ordered.

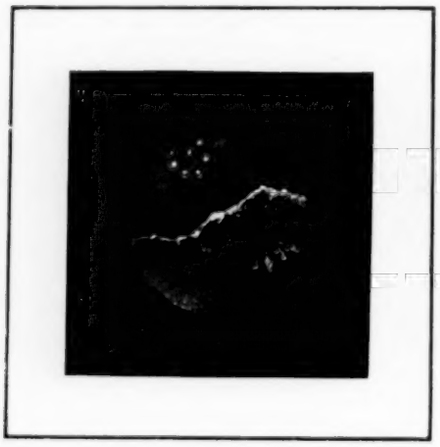

Fig. 2.—Ulcer in Case 2.

Fig. 3.—Healing ulcer in Case 2.

Treatment and Course.—January 18, the whole ulcerated area was very carefully fulgurated, the spark being allowed to play over eight different spots for periods of one to three seconds. Although the initial sparking induced some local bleeding, the subsequent discharges controlled the hemorrhage, so that after the treatment, the terminal hematuria was totally absent. February 14, cystoscopic examination showed that although the deep ulcer was evidently undergoing cicatrization, the superficial portions were still covered with clot and exudate (Fig. 2). This area was now again very carefully exposed to the action of the spark.

May 28, the patient reported that he had been well for almost two months, but that a few days previously there had been a return of the hematuria. Examination showed the following picture. The deep hole seemed to be healed, but the tubercle-like crest was still in evidence. The superficial part of the ulcer, however, though much diminished in size, still showed evidence of recent hemorrhage (Fig. 3). The fulguration treatment was repeated for the third time.

In view of the refractory course of the lesion in this case, and its failure to respond well to the fulguration treatment, I suggested to the patient's family physician, Dr. I. Ritter, that a course of mercurial injections be tried, although the Wassermann test was negative. After two injections, Dr. Ritter reported that terminal hematuria had ceased.

June 16, the greater part of the ulcer seemed to have healed, being represented by minute foci covered with exudate.

From May 16 until September 7, the patient was entirely free from symptoms, and cystoscopic examination on the latter date failed to reveal any sign of the ulcer.

The features presented by the second case may be summarized as follows: the chronicity of the hematuria (duration being over two years), the history of traumatism, the failure of the fulguration method and the apparently remarkable effect of mercurial injections.

R. Le Fur and A. Siredey[3] point out that the conception of simple ulcer as acquired from a consideration of the pathology of ulcer of the stomach may be extended so as to apply also to lesions of the bladder. They believe that the following types of ulcer of the bladder exist: chronic ulcer, acute perforating ulcer and hemorrhagic changes of the mucous membranes. It has been frequently contended that the interior of the bladder is not comparable to the mucous membrane of the stomach and intestines, and is therefore not liable to the same type of infection. In their experimental studies, however, Le Fur and Siredey have shown that this is not the case. They believe that the mucous membrane of the bladder has an eliminative function and that it is not infrequently the site of simple ulceration. The proximity of the rectum and intestinal loops, and the rôle of the bladder as a defendant against infection are the factors that make for vesical ulceration. As regards the pathology of simple ulcer, they point out that not infrequently a localized cystitis is the starting point of the surface defect. There may be an infectious process involving the submucosa which, by virtue of necrosis or suppuration, leads to the formation of an ulcer. If such a process be a diffuse one, a generalized cystitis with ulceration results. It is not difficult to conceive of any number of intermediary stages between isolated foci of infection with a single ulcer, and diffuse generalized cystitis with multiple ulcerations.

Strictly speaking, simple ulceration of the bladder would be an affection which is not provoked by the ordinary causes, such as tuberculosis, neoplasm, and acute or chronic cystitis. Such ulcerations, as a rule, are solitary, although they may be multiple. They are characterized by their latent course and their insidious onset. Their appearance depends somewhat on whether they are of chronic evolution, or of the acute perforating type. Le Fur and Siredey have been able to produce such ulcers experimentally. The "simple ulcer" must be regarded as a provisional appellative designating a type of ulceration which, in the present state of our knowledge, is not provoked by any particular cause, but is the consequence of a number of different pathologic processes of various etiology.

Le Fur,[4] in his thesis on vesical ulcerations, describes a simple chronic, an acute perforating and trophic ulcer. The chronic lesions appear as round indurated ulcers,

3. Le Fur, R., and Siredey, A.: Maladies des organes génito-urinaires.

4. Le Fur: Des ulcérations vésicales, etc., Thèse de Paris, 1901.

comparable to the round ulcer of the stomach and intestine, as gangrenous ulcerations, or as simple erosions or surface defects.

The acute perforating ulcers are usually situated in the posterior wall near the summit. Although their development may be slow, they may at any time give rise to acute perforation and hemorrhage. Latency, hematuria and perforation, therefore, are the characteristics of this type of ulcer.

The third variety of ulcer, simple trophic ulcer, may be grouped under three divisions: (1) those dependent on lesions of the nervous system; (2) those resulting from local processes in the bladder, and (3) those following lesions and operations in the neighborhood of the bladder.

Accepting the work of Le Fur and Siredey as the most comprehensive study of vesical ulceration that has appeared in the literature up to the present, if I attempt to group my own two cases according to their classification, I should regard the ulcer in Case 1 as of the chronic type due to some infectious process, and the lesion in the second case as either of the same type or of the traumatic variety. In spite of the absence of tubercle bacilli in our two cases, and the negative test obtained on inoculation of guinea-pigs, the possibility of primary tuberculous ulceration of the bladder cannot be absolutely excluded. The likelihood of such infection, however, is rather remote in spite of the suspicious nodules in the neighborhood of the ulcer in both cases. Such proliferations could possibly be follicular hypertrophies containing hyperplastic lymphoid tissue, a lesion that is not infrequently found in the pelvis of the kidney in cases of chronic pyelitis.

The conclusions that may be drawn from these meager, but rather rare observations, may be summarized as follows:

1. A careful search should be made in all cases of vesical hematuria for the presence of a simple solitary ulcer.

2. Bleeding ulcers may be overlooked if we fail to bring every portion of the superior and posterior walls of the bladder into view.

3. The most striking symptom, in the cases under observation, was hematuria, persisting for more than two years in one of the patients.

4. In the treatment of this condition (as well as in the treatment of tuberculous ulcer after nephrectomy), the fulguration method should be tried, and, if this fails, mercurial injections should be given in cases of simple ulcer of the *superficial* variety. More recent clinical investigations have shown that there is a type of simple ulcer of the bladder which may be termed *chronic* and *callous*. *Such ulcers should be excised* with my punch-forceps through the operating cystoscope.[5]

5. Future studies should be directed toward the investigation of the etiology of this affection by careful consideration of the histories of the cases, by thorough bacteriologic examinations and by excision of the ulcer through the operating cystoscope.

5. The results of this method of treatment will be described in a future publication.

Significance of Albuminuria.—The existence of albumin in the urine is an occurrence which is in some instances regarded much too seriously and in others made too light of. In every instance it ought to be considered in its relationship to the accompanying evidences of disease and not put on the pedestal of being a disease of itself.—Guthrie Rankin in *Clin. Jour.*

RECENT OBSERVATIONS ON THE INFLUENCE OF THE POSITION OF THE STOMACH ON CERTAIN ASPECTS OF GASTROPTOSIS

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The employment of Roentgen rays in determining the position of the stomach, and recent investigations relative to the etiology of visceral ptosis, together with some late observations regarding the surgical treatment of this condition, have thrown new light on and excited a renewal of interest in gastroptosis.

About thirty years ago, Pacanowski, Ewald[1] and others, by various methods (although usually by distention and percussion), determined that the lower border of the stomach normally is to be found at from 1 to 2 2/5 inches above the navel, being a little higher in women than in men. Their observations have been generally accepted as correct. Furthermore, based probably on these observations, it is quite generally agreed that, in the absence of dilatation, gastroptosis is present whenever the lower border of the stomach is found at or below the navel. Yet in 1901, in connection with other tests carried out on thirty-nine healthy male medical students,[2] I found by inflation and percussion (the subjects lying, with head and shoulders well elevated, to enable them to dispose of the salivary secretions more easily) that the lower border of the stomach, in the median line, averaged 3/8 inch above the navel, the maximum high and low limits being 2¼ inches above and 1¾ inches below the navel. In sixteen of the thirty-nine subjects the lower border was found at or below the navel. In three it was at the navel and in thirteen it was from ¼ to 1¾ inches (in one case) below the navel. As was noted at this time, the lower positions were most often found in thin subjects. I further found that in twenty-eight of the thirty-nine subjects the greater curvature passed beneath the ninth costal cartilage, that the mean pyloric resonance extended 2¼ inches to the right of the navel, and that the mean resonance between the greater and lesser curvatures, in the median line, was 4½ inches, the limits in variations being from 3¼ to 5¾ inches.

While in some respects my findings agree closely with those of the earlier observers, in regard to position, I found the stomach somewhat lower. This difference in findings may be accounted for in part by the fact that I inflated the stomach and thereby was able to secure the required degree of distention in every case, as cannot be done when gas is used; also I had the subjects' heads and shoulders elevated (as the earlier investigators very likely did not), which posture probably caused a slightly lower position of the stomach. As a result of these observations and other later experience, however, I have never attached much significance to the position *per se*, when a stomach has been found at or a little below the navel. My attitude, on this subject, seemed to be strengthened by the contents of a personal note from the late Dr. Munro:

> We find on opening abdomens in which there is no stomach trouble that the lower border of the stomach is more commonly below or at the navel than is given by you or other observers and I believe there is yet a great deal of work to be done to settle the question as to the normal position of the stomach in the abdomen in healthy individuals.

1. Ewald: Diseases of the Stomach, Am. Edition, 1896.
2. Chase: Some Gastric Conditions as Found in Forty Healthy Persons, Philadelphia Med. Jour., June 14, 1902.

The work referred to by Dr. Munro seems now to have been quite satisfactorily accomplished by the radiologist. What we most desired to know, for clinical purposes, was the position of the normal stomach during the process of digestion, with the subject in an upright position. The radiologist has succeeded in furnishing us with this and other much desired information pertaining to the digestive tract. Thus MacLaren and Daugherty[3] say:

> Early in our observations we found that many stomachs were markedly prolapsed but their owners had perfect digestion—but when we found that most healthy women and many healthy men had stomachs hanging well into the pelvis we came to the conclusion that in the upright position (of the subject) the pylorus was usually a pelvic organ.

They, like most other observers, refer to the great mobility of the pylorus.

Hertz and Morton[4] found in seventeen healthy young men that in the vertical position the greater curvature was invariably below the umbilicus, the distances below varying between 1 cm. (⅜ inch) and 12 cm. (4¾ inches), with an average of 5.5 cm. (2¼ inches). Groedel, in thirty-six men and fifty-four women having no gastric disorders, found that the average distance of the lowest point of the greater curvature below the umbilicus was 2.5 cm. (1 inch) for men and 5 cm. (2 inches) for women.

Holzknecht and Pfahler, however, maintain that the pylorus is the lowest point, and that the greater curvature in a stomach which they consider normal does not reach the umbilicus, although such a stomach is rarely seen. Hertz states that he agrees with Rieder, Béclère and Groedel, that it would be most unreasonable to regard a form of stomach, which is so rarely met, as the only normal stomach.

With the subjects in the horizontal position, Hertz and Morton[4] found that the lowest point of the greater curvature was from 2 cm. (¾ inch) to 10 cm. (4 inches) higher than when in the vertical position (showing the effect of posture on the position of the stomach) and they conclude that in most individuals when in the horizontal position (lying flat) it is slightly above the umbilicus.

My observation of ten years ago, that the lower border of the stomach averaged ⅜ inch above the navel (with the subjects in the horizontal position, head and shoulders elevated), agrees very closely with the *x*-ray findings, with the subjects in the same position. Therefore, it would seem that the correctness of my observations is confirmed, and furthermore that, in inflation and percussion, we have a method of determining the position and often the size of the stomach, as accurate, and, on account of the expense of radiography, more practicable for routine office and hospital practice, than the *x*-ray method.

Thus by two methods of examination it has been determined that normally the greater curvature is to be found in the average individual slightly above the navel, with the subject in the horizontal position, although the normal limits vary from 2½ inches above to about 1 inch below the navel. By the *x*-ray method alone, the subject in the vertical position, the greater curvature normally is found considerably lower. So that by any reliable method of determination it would seem that gastroptosis cannot be considered to exist unless the greater curvature is found one inch or more below the umbilicus.

Therefore it is evident that many of our present-day views regarding gastroptosis are bound to undergo marked changes. Gastroptosis, instead of being found in about one-third of all women and in 5 per cent. of men, is actually of far less common occurrence, as the following observation tends to show. Of 400 women, 15 to 50 years of age, recently examined at the Boston Dispensary in relation to general ptosis, I found the lower border of the stomach half an inch or more below the navel in but fifty-two, or 13 per cent. Hence, if we disregard the slight influence of the age limit on occurrence in this observation, it is seen that in something like 20 per cent. of the cases reported as gastroptosis, the stomach has been less than half an inch below the navel, actually within its normal limits. Consequently the percentage of gastroptosis will be reduced from 33⅓ per cent. in females to the vicinity of 10 per cent. Is it then to be wondered at that many of us have maintained that a large percentage of patients with gastroptosis have no digestive or other symptoms referable to the position of the stomach? It has been, indeed, a common observation. On the other hand, because a presumptive ptosis was the most or only apparent abnormal condition discovered, many physicians have attributed symptoms to this condition, and most unjustly, as was the case in nephroptosis, until the surgeon learned that even after his occasionally successful operation the symptoms were not overcome.

It seems to be the popular opinion that digestive symptoms are common in this condition, yet in 500 consecutive hospital patients with dyspepsia, W. S. Fenwick[5] found that the digestive disturbance was dependent on gastroptosis in 3 per cent., while in a similar series of private patients the percentage was 17. He concludes that in about 5 per cent. of the cases of indigestion the cause may be found in gastroptosis. In my fifty-two cases of gastroptosis digestive symptoms were present in 18 per cent. It must be borne in mind that the patient with a prolapsed stomach is as liable to reflex and nervous digestive disturbances as any other class, and probably more so, also that these reflex and nervous conditions constitute by far the larger percentage of all digestive disturbances. Moreover, in many patients with gastroptosis we find a cause for symptoms which is not attributable to the position of the stomach. In forty patients with gastroptosis (degree not stated) Brown[6] recently found some secretory disturbance in 50 per cent. Besides, we occasionally encounter chronic gastritis, hypersecretion and ulcer. In a large percentage of ptosis patients we find some cause for symptoms, other than stasis, of which we hear so much of late from the surgical branch of our profession. Given a low position of the stomach, the internist's first thought is of dilatation, the more serious of the two conditions suggested by the position, and he at once tests for stasis, suspecting either pyloric stenosis or atony.

It must be conceded that the *x*-ray method is the best for determining gastric motility, showing as it does not only the emptying-time of the stomach, but also the state of peristalsis. But for general work the usual tests have proved quite satisfactory, especially in cases of atony, in which, if stasis is sufficient to be of clinical significance, it is readily detected by them (although this statement may not apply to cases of slight obstruction at the pylorus).

3. MacLaren and Daugherty: Tr. Am. Surg. Assn., Philadelphia, 1911.
4. Hertz: Quart. Jour. Med., July, 1910, 111.
5. Fenwick, W. S.: Dyspepsia, 1910.
6. Brown: New York Med. Jour., Sept. 14, 1911.

Often even in marked degrees of gastroptosis the stomach empties itself prematurely (confirmed by the radiologist), notwithstanding the "duodenal hill" over which it is supposed to be obliged to force its contents; occasionally there is some delay (one hour or more) in the emptying-time—slight stasis—but certainly not in 30 to 40 per cent. of cases, as stated by Rovsing;[7] moreover, I believe I am right in saying that these slight degrees of stasis have never been generally thought a "cause of auto-intoxication and inanition," as Rovsing thinks.

Marked degrees of stasis, except in cases of pyloric obstruction, according to my experience, are not often encountered. I have dwelt at length on symptoms, because some general understanding of them is necessary in considering treatment and especially the indications for surgical treatment, a feature of this subject which at present is demanding attention. If gastroptosis, however, is a cause of digestive symptoms, then by the great reduction in the number of cases to be brought about by the exclusion of those normal ones which have formerly been reported as gastroptosis, the percentage of digestive symptoms will be relatively very much increased in gastroptosis patients and we shall have a distinctly more definite basis on which to judge the relationship of gastroptosis to digestive symptoms.

By the same reduction in the number of ptosis cases, ptosis is liable to lose much of its prominence as a factor in the causation of neurasthenia, accredited it by certain members of our profession, because gastroptosis will be found absent in a far larger percentage of neurasthenics than is the case at present.

Since the transverse colon has been found to occupy a position lower than was formerly considered normal (the lowest portion being situated well below the umbilicus[8]) we shall be less inclined to attribute symptoms to this low position and to the acute angles at the hepatic and splenic flexures which we now know are normal. Thereby much needless surgery may be avoided. But radiography, while teaching us the normal, can furnish much valuable information regarding pathologic conditions of the intestines; hence through its aid more rational treatment of these conditions may be anticipated.

It is evident that in the treatment there will be fewer attempts to elevate and support stomachs, since so many formerly considered to be prolapsed are now known to be within their normal limits. In fact, far less attention will be given to the position of the stomach, so long as it is known to be properly performing its work. Finally, many of the errors so common in the past, and entailing so many wrong assumptions relative to certain phases of gastroptosis will be avoided, when it is realized that gastrocoloptosis is by no means of such common occurrence as it has been considered.

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7. Rovsing: THE JOURNAL A. M. A., Aug. 3, 1912, p. 334.

The New Vital Statistics.—A dry-as-dust historian of the wars of ancient Greece could lend more aid to a modern football team than the old-time statistician furnished to public health endeavors. Even now the new vital statistician is scarcely yet full-born. Hardly a health department now in existence collects in full or uses to full advantage one-tenth the information that it really needs. . . . The new vital statistician has only begun to move. When he does move, fully equipped, alert, he will systematize, organize and use the rich data so far largely wasted, this very life-blood of public health endeavor, accurate, complete information concerning the way humanity reacts to human ills.—H. W. Hill in the *Journal-Lancet*.

CONSERVATISM IN SURGERY*

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Vis medicatrix naturae! The great underlying factor in all of the many advances in medicine and surgery that the world has witnessed during the past fifty years is the healing power of Nature. Without this wonderful power, many of the results of our attempts to relieve humanity of the numerous lesions to which the flesh is heir would be appalling; even with this aid many of them are distressing.

If we could fathom the wonders of Nature as exemplified in her power to construct, maintain and reconstruct, to eliminate harmful products, to cure disease, our task of aiding the sick and afflicted would be greatly simplified. Nature, alone, until the most recent times, has effected a cure in most diseases; the physician and surgeon have but aided in conserving the strength of the individual until Nature's work has been accomplished. To-day, by taking advantage of the slight knowledge he has of the methods employed by Nature in effecting cures, the doctor of medicine is able to master certain diseases in a fair percentage of instances. This miraculous curative power of Nature is coming more and more within the knowledge and control of man, through the studies, the investigations, the painstaking and never-ending experiments of the scientific medical seeker for knowledge of the truth. Probably he will contract the field of the brilliant operator of to-day by discovering the cause, the prevention, or the cure of malignancy in its many phases, of the numerous affections of the glands of internal secretion, of neoplasms in general, of the various infections, etc., until finally the physician and surgeon will be treating only mechanical defects, old age and accidents. Visionary? Unquestionably. And yet who can say, judging from the rapid strides in medicine and surgery during the last fifty years, that such a surmise may not be prophetic?

The work of the operator, however brilliant the operation, has been to aid Nature — to relieve some mechanical defect in the human economy, to remove an offending part or organ, to remove a neoplasm, with the hope that Nature would do the rest and return the patient to health and strength. The operator has but a limited number of cures. He does not cure the inflammatory condition of the appendix; he removes the appendix and the inflammation. He does not cure a carcinoma of the breast; he removes the carcinoma and the breast. He does not cure a fibroid of the uterus; he removes the fibroid and usually the uterus. He does not cure a pyosalpinx; he removes the collection of pus and the tube. Suffering humanity, however, has been benefited almost beyond conception by the marvelous deeds of removal, of elimination of disease and diseased organs by the operating surgeon, and these deeds will be continued and extended into new fields until a better way shall have been discovered for relieving mankind of its many ills.

Is it not possible, however, as suggested by the late Dr. Maurice Richardson, that "through the enthusiasm of a long series of successes, we are whirled from a sound foothold and carried beyond the limits of safety and conservatism?" Do we not place "too great reliance on surgical methods when other and less dangerous

* Read before the Harrisburg Academy of Medicine, Sept. 27, 1912.

methods are practicable?" Do we not often lose sight of the wonderful cures that Nature would effect if she were given the opportunity? But, on the other hand, do we not frequently deny to Nature that assistance which should be accorded as soon as possible?

Conservatism in surgery has been defined as "aiming at the preservation of injured parts as far as possible, together with the interests of the patient, rather than at brilliancy in procedure;" as "the preservation or the restoration of disabled parts, rather than their removal;" as "the adherence to the established order of procedure rather than the acceptance of new methods."

I wish to present a different definition of conservatism in surgery, a different idea in regard to the subject in which I have been intensely interested since entering the field of medicine. The word "conservatism" comes from the Latin and means "to keep, to hold, to preserve." My conception of conservatism in surgery is "an adherence to that method of procedure which will best tend to keep, to hold, to preserve the life and the health of the individual."

But, you will ask, is not the underlying thought, the ideal, of every conscientious medical man, be he called radical or conservative, to follow the method which will best tend to keep, to hold, to preserve the life and the health of his patient? I believe so. And I believe, also, that any lapse from this ideal on the part of the surgeon is due to the following factors:

I. Inability to estimate accurately the resistive and recuperative powers of an individual.

II. Lack of careful, conscientious study of each individual case.

III. Failure to recognize and acknowledge the wonderful curative power of Nature, or, adversely, by denying to Nature that assistance which should be accorded as soon as possible.

IV. Failure to weigh the contra-indications to an operation, which are often to be more critically considered than the indications.

V. Failure to recognize the seriousness of every operation, no matter how trivial it may be.

VI. A desire to do more in the operative procedure than is necessary.

VII. A desire to enter new fields of medicine and to devise or perform operations in conditions or diseases before it has been shown that such a procedure may not be contra-indicated rather than indicated.

VIII. Failure to consider the interests of the patient first instead of the desire to perform a brilliant operation, or possibly the desire to please an attending physician, or, in rare instances, the desire to make a large fee.

I. Inability to Estimate the Individual's Recuperative Powers

We are unable to weigh or estimate accurately the resistive and recuperative powers of an individual. We should, however, when not impracticable on account of the urgency of an emergency operation, carefully study, as far as possible, the ability of a patient to withstand the indicated operative procedure. As Bloodgood says:

> Every surgical operation is a depressant in relation to the so-called vital resistance of the individual, or his factors of safety. It is a weight to be borne or carried. All the factors of the intervention summed up must be less in their burdening capacity than all the factors of safety or vital resistance in their carrying capacity, or the patient dies.

Study of the blood, of the urine, of the kidney function, of the blood-pressure, of the general tone of the individual, of the effects of his disease or surgical condition, will reveal to a certain degree his carrying capacity. Ultimately, through advanced knowledge, it may be possible to estimate accurately this carrying capacity. At present, reliance must be placed on our limited knowledge and experience to gage it. If it appears to be less than the burdening capacity of the contemplated procedure, conservatism would postpone or prohibit operation.

The lack of vital resistance in a patient when first seen by the surgeon is often the result of the ravages of disease or of a surgical condition, either of which might have been eradicated at a previous period without a too great tax on the carrying capacity of the individual. This would not occur so often if all physicians would recognize, as most of them do, that certain conditions and diseases can be relieved or eradicated only through the assistance of the operator. To illustrate: I was called to see a man, 69 years of age, in whose case a diagnosis of strangulated inguinal hernia had been made five days previously. On the third day after the diagnosis had been made, an internist was called in consultation and he advised that further efforts be made to move the bowels by means of cathartics and enemas before operation be considered. Had a surgeon seen this case soon after the diagnosis had been made, it is probable that the life of the patient would have been spared. That, of course, was an extreme case, but I know of two other cases of strangulated hernia, occurring within the last month, which were sent to a hospital for operation on the third day after the diagnosis had been made. These cases also well illustrate the thought that we deny to Nature that assistance which should be accorded as soon as possible, the granting of which would be true conservatism in that it would best tend to keep, to hold, to preserve the life and the health of the patient.

Waiting, procrastinating, in conditions such as are seen in a strangulated hernia, in mechanical obstruction of the intestine and in complete obstruction of the urethra, can be nothing but meddlesome interference with the demands of Nature to be afforded an opportunity to continue the life and the health of an individual.

II. Lack of Careful Study of the Case

The lapse from the ideal through lack of careful, conscientious study of each individual case is more often seen than it should be. This study is unnecessary and might be a detriment to the patient in many conditions, such as a strangulated hernia, an internal hemorrhage, a ruptured viscus, and mechanical obstruction of the intestine, in which immediate intervention might afford the only relief and would take advantage of the carrying capacity of the patient before the burden became too great to be carried. But in operations of election, as to time, a careful study of the patient should be made for the purpose of arriving at a diagnosis that may be as correct as possible, for the purpose of gaging as well as we can the resistive and recuperative powers of the individual, and for the purpose of searching out the contra-indications to surgical interference.

Vast experience, especially when attended by success, will possibly warrant a few surgeons in relying on an intuitive surmise of the entire condition presented; but intuition should not be the resource of the majority of surgeons. Faults in diagnosis are not infrequently made by those who make the most careful study, but many more mistaken diagnoses are made through superficial, hurried examinations than through lack of knowledge. Success in the past, numerous and hurried calls on our time, a long list of consultations may be our excuse for not carefully examining and studying each case presented; but it would be well to remember that "no

success is so great that it may not be greater; no achievement so brilliant that its brilliancy may not be marred; and no error so palpable and conspicuous that it may not be committed" (Richardson).

III. FAILURE TO RECOGNIZE THE CURATIVE POWER OF NATURE

The failure to recognize and to acknowledge the wonderful curative power of Nature is frequently seen in the untimely, the unnecessary or the uncalled-for operation. And, adversely, reliance on this power frequently denies to Nature that assistance which should be accorded as soon as possible. The consensus of opinion of the medical world in well-recognized conditions, modified, at times, by the personal experience and observation of the individual surgeon, should be the guide directing him to operative procedure or to a reliance on the healing powers of Nature. It is impossible to tell how potent or how inert Nature will be in any given instance. Experience has taught us, however, that in a large majority of the cases of one class Nature does not exert a curative influence; in a large percentage, possibly a majority, of the cases of another class, Nature does exert a healing influence.

To illustrate the first class of cases: Malignancy, in its many phases and forms, is seldom eradicated, or even held in abeyance by the unaided powers of Nature. The only hope for the individual lies in the early destruction of the malignant cells by means of the Roentgen ray, by fulguration, in rare instances by Coley's fluid, or in their removal by operative measures. Nature demands assistance in all cases of malignancy, and this assistance must be given early in the disease if we are to follow the method which will best tend to keep, to hold, to preserve the life and the health of our patient. Of what avail is the scalpel of the most skilful operator in advanced malignancy, in the presence of metastases, in a patient overburdened by the ravages of the disease? The disease is beyond the skill of the greatest operator, and all he can hope to accomplish is palliation, and frequently even palliation is denied the patient. Early recognition of the condition and immediate eradication of the malignant cells is, in my opinion, true conservatism. Delay means greater suffering, a greater amount of invalidism and a greater number of deaths.

Can we criticize any one for this delay in instituting proper treatment? I think so. The Pennsylvania Commission on Cancer, in its report, says:

> In superficial cancers the condition has been apparent to the patients on an average of one year and six months before they came to the surgeon. . . . One year and one month have elapsed between the time the patient consulted the family physician and the time that he came to operation. In the deep cancers, this time is one year. . . . In 3 per cent. of the cases of cancer of the breast, the physician first appealed to did not make any local examination. Reports directly state that in 13 per cent. of breast cases the physician first appealed to gave maladvice (by maladvice we mean that the physicians prescribed salves, ointments or other placebos or advised to "wait to see what develops," etc.). In stomach cases, the first physician made no local examination in 9 per cent. and gave maladvice in 20 per cent. In cancer of the neck of the uterus, the first physician made no local examination in 10 per cent. and gave maladvice in 20 per cent. In cancer of the body of the uterus, there was no local examination in 10 per cent. and maladvice in 10 per cent. In cancer of the ovary, there was no local examination in 14 per cent. and maladvice in 14 per cent.

Is it wrong to suggest that these physicians lapsed from the ideal through a failure to study carefully and conscientiously each case and to give to Nature that assistance which should be accorded as soon as possible?

Another class of cases may be illustrated by the acute inflammation of the appendix. Here Nature will tend to effect a cure and will cause the subsidence of the acute inflammation in a large percentage of the cases. In the remaining cases, if Nature be not aided by the surgeon, the inflammation will extend until it bursts its confines and causes extensive and often fatal inflammation of the peritoneum. Granting that Nature will cause a subsidence of the inflammation in the majority of cases, are we justified in giving Nature an opportunity to do so before we offer operative aid? I believe not, because we are unable to decide how powerful Nature will be in any instance; we are unable to decide which case, aided by non-operative treatment, will go on to recovery, or which case will continue until we have the simple appendicitis complicated by purulent peritonitis, purulent involvement of the lymphatic system, an acute suppurative cholangeitis, a cholecystitis, etc. Therefore, I believe that true conservatism in acute appendicitis, the method that will best tend to keep, to hold, to preserve the life and the health of the patient, demands the removal of the appendix while the inflammation is still confined to that organ. If this could be done, there would be none of those complications mentioned above, there would be none of those conditions demanding drainage, with the long, tedious convalescence, the subsequent adhesions, intestinal obstruction, incisional hernias, and many other sequelae; there would be fewer deaths.

After the inflammation has extended beyond the confines of the appendix, we have a far different condition with which to deal. In these cases, in the presence of a spreading peritonitis, I believe, judging from the reports of Deaver, of Murphy, of Ochsner, and from my own experience, that Nature, aided by the Ochsner-Murphy-Fowler treatment, will save more lives than Nature, in the presence of operative interference, can possibly save.

In another class of cases, such as accidents, crushes and mutilations, great judgment is required to determine whether we should rely on the curative power of Nature or remove an offending part. Medical literature records hundreds of cases in which Nature has worked her miracles and afforded patients useful, functional limbs, although in many instances the surgeon had urged their removal. It is not true conservatism to save a limb at the cost of a life, but thorough study, guided by the thought that Nature will often perform wonders, must be made of the extent of the injury, of the condition of the blood-supply, of the probable outcome both as to life and as to the usefulness of the member, before removal is advised. This healing power of Nature must be recognized in all accidents such as fractures, not necessarily requiring amputation, before any operative procedures are instituted.

IV. FAILURE TO WEIGH THE CONTRA-INDICATIONS

A failure to weigh the contra-indications to operative procedure is justifiable only, if ever, in those cases in which the lesion would be necessarily fatal if not relieved, as in the mechanical obstructions. Here a moribund condition is practically the only contra-indication of moment. The conditions which would have but little bearing in such cases might and very often should contra-indicate operation in those conditions in which the procedure is not a life-saving measure or, in many instances, one which does not tend to increase the health or the comfort of the patient. In hernia, for instance,

I believe that operation should be postponed or forbidden when a truss is efficient if the patient shows a trace of albumin, has a cold in the head, is suffering from bronchitis or is very obese. The various anemias, diseases of the lung, the heart or the kidney, renal inefficiency, diabetes, hemophilia may each prohibit operation. In all instances the effect of such conditions on the carrying power of the patient and the probable influence of the anesthetic and the operation on them must be considered and weighed critically before an operation is advised or even allowed in their presence.

V. FAILURE TO RECOGNIZE THE SERIOUSNESS OF EVERY OPERATION

A failure to recognize the seriousness of every operation, no matter how trivial it may be, is due, possibly, to the familiarity with operative procedures which comes with long experience and great success. Familiarity, however, should never breed contempt for human life, nor should the surgeon ever lose sight of the fact that it is a human life with which he is dealing. I believe that every operative procedure is a serious one and that every surgeon should realize this if he is to follow the method that will best tend to keep, to hold, to preserve the life and the health of an individual. When I hear of great surgeons making light of an operation to a patient I wonder whether it is not done for the purpose of giving to the patient great mental aid to increase his carrying capacity; when I hear of great surgeons making light of an operation not only to the patient but also to those near and dear to that patient, I cannot help asking, with Richardson, whether "we realize what the responsibilities of our positions as attending physicians and surgeons are? In what other walk of life is it possible, in civilized countries, for a man to be advocate, judge, jury and executioner in matters of life and death, often on his unaided responsibility?"

VI. DESIRE TO DO MORE THAN IS NECESSARY

A desire to do more than is necessary in an operative procedure is often the desire to do what may be termed a completed operation. This would undoubtedly be most commendable in every instance if we could tell positively that the carrying capacity of the patient would be able to care for the added burden of an extended and possibly unnecessary procedure; or if we could say that Nature would not complete the eradication of the condition with less danger to the life and health of the patient. I recall being censured by a physician for not completing an operation I was attempting to perform on one of his patients. It was a case of double pyosalpinx in a pelvis filled with adhesions matting the various structures together into an almost homogeneous mass. I succeeded in separating the tubes with their contained pus and removed them. A study of the remaining mass of uterus, sigmoid, intestine and ovaries matted together by dense adhesions convinced me that I would do more harm than good by attempting to return them to their normal condition. Therefore I did nothing further. The physician was not at all pleased with what he considered incomplete surgery and frankly told me so. The patient made a good operative recovery. In thinking over the case I wondered whether I had erred in not attempting to do more than I had done. I concluded that I had done the best for the patient and was sustained in my judgment, later, I thought, when I read G. Brown Miller's statement that "in difficult cases it is not an acknowledgment of want of skill, but the sign of good surgical judgment not to attempt the impossible or to assume risks which are too great." Every surgeon naturally wishes to have the attending physician think that he is a thorough operator, one without fear of any difficulties or conditions that may be encountered, but if one tries to give this impression by doing unnecessary surgery, by doing harmful surgery, by doing more surgery than is indicated in any individual case, one is not, I believe, doing that which would best tend to keep, to hold, to preserve the life and health of the patient.

VII. DESIRE TO ENTER NEW FIELDS

The desire to enter new fields of medicine and to devise or perform new operations is the result of a most natural wish to be of greater assistance in relieving mankind of its many ailments. A desire to broaden the field of surgery for the benefit of humanity is most commendable; the results of the pioneer work in such fields have been truly wonderful.

We all would like to be leaders in our chosen walk of life, to be recognized as authorities in the branch of medicine to which we devote our time and attention. Few of us, however, are fitted by training, by temperament or by opportunity for such a position in surgery. A thorough training in anatomy, physiology and pathology; a temperament that will afford patience, painstaking investigation, absolute thoroughness and complete analysis of cause and effect; an opportunity to study conscientiously, to experiment on the lower animals; the ability to draw logical conclusions from studies and investigations — all these are essential to the leader into new fields of surgery, and this is especially so when it is realized that the life, the comfort and the health of a human being are at stake. We all are too prone to enter eagerly into the discussion of a new operation or a new form of treatment, to state our opinions pro and con, to condemn or uphold, to jump to conclusions, without the necessary thought and study we should devote to the subject if we truly wish to aid humanity. We are too apt to follow blindly our desire to become great, to become noted and in this desire to follow the suggestions of great surgeons without realizing that very few of us have the training, the dexterity, the differential diagnostic skill of these men; or without logically concluding for ourselves, as far as we may, that a suggested form of treatment will be suited to the case we have under consideration. We must follow the great leaders before we become leaders ourselves, but we will lapse from the ideal, we will not do that which would best tend to keep, to hold, to preserve the life and the health of our patient if we do not conscientiously study their teachings and our ability to carry out their instructions in detail before adopting them as a part of our armamentarium.

VIII. FAILURE TO PUT THE INTERESTS OF THE PATIENT FIRST

The lapse from the ideal in the desire to please the attending physician must not be condoned even if it be admitted that it is a most natural tendency. The interest of the patient should be the first, foremost and most pressing consideration and should be placed before those of the physician or self. Until he has reached such fame that patients themselves demand his services, the surgeon is, to a great extent, dependent on the physician for cases. These will not be forthcoming unless the surgeon pleases the physician. It is an undeniable fact that many physicians look on the surgeon as a tool, an automaton, "a senseless piece of machinery" (Richardson), who is expected to carry out the wishes and often

the demands of the medical man without a thorough study of the case and an expression of opinion by himself. The only instance I can recall in which the surgeon could and should play the part of the tool of the physician is in cases of perforated typhoid fever in which, in my opinion, the diagnosis and operability of the patient rest solely with the physician who has had charge of the patient and is thoroughly conversant with all phases of the case.

In the general run of cases the physician, usually, from careful study will have a complete knowledge of the case from the standpoint of the internist; but this does not signify that he should be entitled to speak, in all instances, from the standpoint of the operating surgeon; or to lay before the patient a complete operative method of treatment without consulting with the surgeon who is to take on himself, or should take on himself, the decision whether or not the suggested operation is indicated. At times, the surgeon is expected to accept the diagnosis of the physician and to follow the wishes of the physician rather than to consider the true interest of the patient. A surgeon cannot conscientiously do his best to keep, to hold, to preserve the life and the health of an individual unless he studies the case as carefully as time will allow, arrives at a diagnosis as nearly correct as possible, and then considers the pros and cons, the indications and the contra-indications to operative procedure before he advises or even consents to operation.

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PUBLIC HEALTH EDUCATION *

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It is the purpose of this paper to indicate briefly some of the requirements of an efficient public health officer, and to point out the work that is being done for the instruction of the public, and the opportunities for the professional training of a public health administrator and the places where they may be found. To educate the average citizen or the special officer in the business of public health is not so easy as it sounds, for it includes the difficult task of educating the educated as well as the ignorant; it demands great unselfishness of the practicing physician; it imposes radical readjustment on our educational system, and it robs the average citizen of many dear beliefs, while urging on him new and unaccustomed actions.

Among physicians it is no longer disputed that work in public health cannot be relegated to a political sideline. The day has passed when a printed notice tacked on the gate-post to indicate the presence of an infectious disease, and to send passers-by to the other side of the street, fulfils the whole duty of a health official to the community at large; or when a disinfecting candle producing ill-smelling smoke fulfils his duty to the stricken family. One of the most pathetic evidences of human credulity is the fact that from time immemorial men have trusted to the burning of joss-sticks to frighten away the evil spirits of disease, believing that a foul smoke and disease could not occupy the same room at the same time. As a California physician puts it, "Modern disinfection is the burning of incense to an unknown god." Even a layman can realize the futility of unthinking, perfunctory performance of such an office as this. The most untrained mind can see that the method of disinfection in any given case depends on the method of infection. It is the carrier of the infection as such that must be recognized and done away with. The most serious menace to public health, the most dangerous "carriers," are those human beings who carry about undetected the germs of disease and spread it among an unwitting public. Secondary in importance are insects and rodents, whether they are mechanical carriers, as fleas, rats and squirrels in bubonic plague and flies in typhoid fever and tuberculosis, or biologic carriers, as mosquitoes in malaria and yellow fever. So it comes about that a physician knowing something of curative medicine and possessing power for appointment in political circles has not the requirements for a public health officer, who must first understand as far as possible the sources of disease, that he may meet each on its own ground and fight it with suitable weapons, and who must counteract causes rather than results.

The fact that preventive medicine is not a finished science, that there are unnumbered problems yet to be solved in the field or laboratory, presupposes open-mindedness in the man who turns his energies in that direction. No problem he will meet is small or unimportant, since it is related to human life. He must be alive to conditions, awake to discoveries, and conversant with the success or failure of methods in other localities; he can little afford to lag behind the science of which he is an exponent, but should be ambitious to hasten its advancement; this he can accomplish if he will dignify his least undertaking as a definite problem in research. Chapin in his "Sources and Modes of Infection" urges the necessity of the statistical method among public health administrators, and prophesies the good that will come of accurate knowledge thus accumulated.

The so-called sanitary survey presents a method of procedure that no health official can do without; it has proved its efficiency in some remarkable discoveries, notable among these in our own vicinity being Dr. Wilbur A. Sawyer's solution of the typhoid mystery on board the steamship *Acme*, from which for three and a half years had come most of the typhoid cases reported to the U. S. Marine Hospital in San Francisco. Lack of scientific acumen had prevented several medical organizations from discovering the source of the whole trouble in a single "carrier," who in four years since his being a victim of typhoid fever had infected twenty-seven fellow workmen, four of whom had died.

Another requirement of the health official is a knowledge of laboratory diagnosis. Through the laboratory he undertakes the intensive solution of problems, and through the sanitary survey the extensive solution. Here, as in other phases of his work, he needs eternal vigilance, for every day marks some advancement, some increase in bacteriologic knowledge, which he must take as grist for his own particular mill.

Preventive medicine, then, is a broad, steadily progressing science. A worker in this field cannot be lazy, he cannot be unscientific, he cannot even serve successfully two scientific masters. Unwilling as some physicians are to grant the fact, it is none the less true that a division has to be made between preventive and curative medicine, and the man who does eminent service in one department has small time for service in the other.

The division has evidently come to stay, because it is recognized and provided for in some of the best insti-

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tutions of learning in our country: in Harvard, in the universities of Pennsylvania, Wisconsin and Michigan, complete separate courses are given to students who attain the degree of M.D. (doctor of medicine) and the degree of D.P.H. (doctor or diploma of public health). When the division was first made, the degree of M.D. was a prerequisite for the degree of D.P.H., but this proved impracticable, resulting in too long a course and in one containing preparation unessential to the practice of preventive medicine. The name of the new degree has caused dispute in the various colleges, but the name is less important than the thing itself; the name is less important than the fact that in some colleges physicians are being adequately trained to safeguard the public health. If I were in a position of authority I might suggest M.D.P. as the degree for preventive medicine, and M.D.C. for the degree of curative medicine, these having the advantage of being similar, but distinctive and unambiguous. I believe in a degree for doctors of public health, since the requirements for this work are as distinctive as the requirements in other scientific professions, and a degree is after all only a brief summary of a man's preparation to undertake certain kinds of work.

The University of California has no degree as yet in public health. The academic senate has had the question under consideration for some time. It is proposed that the degree be granted to students who hold the degree of Bachelor of Science or its equivalent from a recognized college or university, who in addition complete two years of satisfactory special study. Persons holding professional degrees in medicine or sanitary engineering may under favorable conditions reduce the time to one year. In all cases a thesis on a special subject would be required.

Although the University of California has not yet a defined course leading to the degree of public health, it has long supplied courses adequate for the need of general students. It has not been slow to recognize that, in the modern crusade for public health, advance depends not only on professional leaders but also on intelligent laymen in a given community or in the country at large.

All first-year students are required to take the course in general hygiene. This means, for example, that in the present year over 1,200 students are being taught the principles of personal and sex hygiene, the sources of infection, and the meaning and methods of immunity. As far as is possible specialists address them on those and kindred subjects. They are made acquainted with outworn but prevalent medical fallacies, and are taught to display reason rather than blind credulity in judging the claims of patent medicines and of irregular fads, frauds and cults that mask under many names. The trained intelligence of the individual must be the highest court of appeal in this as in all departments of knowledge. In the thirty lectures, to be sure, only a brief outline of so large a range of subjects is possible, but it serves a twofold educational purpose: as an individual the student has a foundation of knowledge on which he may order his life so that it will be normally healthful; as a citizen he has some indication as to how he may further conditions on which the health of the public depends.

Beside the general required course, the university offers advanced work to students who wish to make a special study of hygiene, and each year the increasing size of the classes indicates the increasing interest in the student body. The course in epidemiology covers the chief communicable diseases, with the problems of contact and carrier control in connection with each. The course in child hygiene is arranged for teachers in the public schools, providing them with training requisite for rendering intelligent assistance in the health supervision of children. The courses in sanitary survey and public health organization are self-explanatory, and give to the student a thorough knowledge of the most modern and efficient methods in these subjects. The course in applied hygiene gives laboratory instruction in the most modern methods of detecting communicable diseases, of examining air, water, milk, etc., and of testing disinfectants. Courses are provided for research hygiene in which special problems may be worked out in the field or in the laboratory; for example, last year a student investigated the causes of contamination of the oyster beds in San Francisco Bay; this year a student is investigating diphtheria carriers in a state institution. Closely related to these courses in hygiene are allied courses in other departments: in the agricultural department disease-carrying insects are studied; in the zoology department the protozoa dangerous to animal or human life; in the civil engineering department instruction is given in water and sewage engineering, in sanitary engineering, and in all the phases of engineering related to public health.

Not only in schools of collegiate standing, but in secondary, and even in elementary schools, hygiene is being made a part of the curriculum. The sudden demand for trained teachers in this subject is being felt and met, as I have already indicated, in university courses arranged for the teacher of hygiene. Private schools, women's clubs, philanthropic organizations and extension lecture courses are all recognizing the demand for knowledge along the line of hygiene, and are doing no small part in educating the public by furnishing speakers and illustrated lectures on this and kindred subjects. The journalistic press, keen to recognize a subject of interest, daily publishes popular articles on various aspects of health.

The special car which the State Board of Health fitted up with an exhibit and sent far and wide in this state marked an epoch in the awakening of some parts of California to the importance of hygiene, and to the relations of public health to the individual and the community whether it be a remote district, a small town or a large city. Dwellers in the country have too long held the complacent belief that their isolated position makes them immune to the ills that befall the inhabitants of towns, even when mortality in rural districts has made unexplained inroads on their immunity. It is they who profit most from the informal and eminently practical education which a traveling exhibit and its speakers furnish.

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Results of Industrial Strain on the Working Woman.—In summarizing the direct effects of industrial strain on the working woman, it is my opinion, after consulting statistics compiled by many investigators, boards, institutions, companies, colleges, etc., and after conferring with a number of the thoughtful people who have opportunities to observe women who work under varied conditions, that with properly regulated hours of work and recreation, outside of the excessive physical labor to which I have referred in this paper, women may work in practically any field of modern industry, and not only retain but increase their standard of health, if they are given hygienic and properly arranged buildings in which to work, and if they and their employers are taught the common sense of the laws of health.—Morton in *Am. Jour. Obst.*

SALVARSAN IN GENERAL PARESIS

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Early last year I presented an article[1] in THE JOURNAL, giving the general negative results obtained in the treatment of general paresis with salvarsan by the subcutaneous method of administration. The results were so unsatisfactory, in many cases the salvarsan failing to be absorbed, and the method of administration being so painful, that we discontinued its use and have since used the intravenous method.

The following cases were selected with the idea of treating patients in good physical health and showing the fewest possible symptoms, mental and physical, of the ravages of this disease. As is known, patients received in a state institution have run the gauntlet of physicians and quacks and are finally taken there, as to a court of last appeal, the result being that they are generally far enough advanced in the disease to prevent many mistakes being made in diagnosis.

CASE 1.—*History.*—W. B., farmer, aged 43, married, admitted to hospital Feb. 4, 1911. One cousin insane. Previous health good up to two years before admission when symptoms of mental trouble appeared. Cause of trouble given as sunstroke. Patient noisy and incoherent on admittance.

Physical Examination.—No physical defects present. Well nourished. Alimentary, respiratory and circulatory systems normal. Gait unsteady; slight ataxia and aphasia present. Voice paretic. Incoherent and delusional. Patellar and plantar reflexes absent. No ankle-clonus. Pupillary reflex reduced. Argyll Robertson pupil absent. Urine negative.

Treatment and Results.—On Feb. 6, 1911, the Wassermann reaction was found to be positive. Following admission patient became quieter and remained in good health, at times, however, becoming slightly disturbed, his mental condition changing but little. On March 4, 1912, patient was given 0.6 gm. salvarsan intravenously. Positive reaction followed and was slightly disturbed for a few days. March 20 the Wassermann was found to be still positive and on March 26 a second dose of 0.6 gm. of salvarsan was given. Positive reaction followed with some mental disturbances for a few days. Patient soon became quiet and remained about the same. A Wassermann made again on June 7 was found to be positive. A repetition of the Wassermann on Nov. 7, 1912, gave a positive finding. At present he is quiet and orderly, eating and sleeping well, in good health and his mental condition remains stationary. In this case we get practically no change, except slight disturbances following the administration of salvarsan, the patient's condition at present being about the same as just previous to its use.

CASE 2.—*History.*—H. B., married, laborer, aged 25, admitted to hospital Sept. 18, 1911. Family history negative. Previous health good up to two years previous to admission when symptoms of mental trouble developed. Cause of trouble given as syphilis. Patient cigaret-smoker since 7 years of age, greatly depressed on admittance.

Physical Examination.—No physical defects present. Well nourished. Alimentary and respiratory systems normal. Heart normal. Pulse 74, irregular and weak. Arteries slightly hardened. Gait unsteady. No ataxia present. Aphasia and incoherence present. Delusional. Patellar reflex greatly increased. Plantar normal. No ankle-clonus. Pupillary reflex reduced. No Argyll Robertson pupil. Urine negative.

Treatment and Results.—Oct. 4, 1911, the Wassermann reaction was taken and found to be positive. Patient improved somewhat mentally and physically following admission, and on Jan. 19, 1912, was given 0.6 gm. salvarsan intravenously. Wassermann reaction made Feb. 9, 1912, on blood and spinal fluid: both found to be positive. Salvarsan was given again March 7. March 20 the Wassermann reaction was still positive. Patient began failing mentally following the second dose of salvarsan. Ataxia appeared and aphasia increased and he became very irritable. His general health, however, remained good. On August 22 convulsions appeared and he died on Aug. 25, 1912, from exhaustion. In this case the patient improved somewhat up to the second administration of salvarsan, when decline set in and he failed rapidly, dying in five months. The use of salvarsan in this case no doubt merely hastened the end.

CASE 3.—*History.*—J. B. F., farmer, aged 50, married, admitted to hospital Oct. 25, 1911. One cousin insane. Previous health good up to a short time before admittance when symptoms of mental trouble appeared. Cause of trouble unknown. Patient greatly disturbed and very delusional on entering hospital.

Physical Examination.—No physical defects except a small goiter present. Patient fairly well nourished. Alimentary and respiratory systems normal. Heart and valves normal. Arteries slightly hardened. Pulse 120, regular, weak. Gait steady. No ataxia. Aphasia and incoherence present. Patellar and plantar reflexes increased. No ankle-clonus. Pupils unequal. Pupillary reflex reduced. Argyll Robertson pupil absent. Urine negative.

Treatment and Results.—On Nov. 2, 1912, the Wassermann reaction was made and found to be positive. The patient's condition did not improve and on Dec. 4, 1911, he was given 0.6 gm. salvarsan. Following this he became quieter, eating and sleeping much better, but did not improve at all mentally. On Jan. 4, 1912, the Wassermann reaction was made and found to be slightly positive. Salvarsan was given again on January 16. February 9, Wassermann reaction was repeated and found to be negative. No mental improvement followed, but patient slowly improved physically until August, when he began to fail somewhat physically, ataxia appearing and mental symptoms increasing. November 7, Wassermann reaction was found to be positive. November 19, 0.6 gm. of salvarsan was again given. At present he is still declining slowly mentally and physically. In this case physical improvement set in following the use of salvarsan, but its good effects seem to have been only temporary and the general progressive symptoms reappeared after a few short months, the disease continuing on its slow course of destruction.

CASE 4.—*History.*—W. D. R., a tinner, aged 45, widower. Admitted to hospital Nov. 2, 1911. Family history negative. Previous health good up to one year before admittance when symptoms of mental trouble appeared. Cause of trouble given as alcoholism. Patient greatly disturbed and very delusional on admittance.

Physical Examination.—No physical defects present. Patient in fairly good physical health. Alimentary and respiratory systems normal. Heart and valves normal. Arteries somewhat hardened. Pulse 90, regular but weak. Gait steady, no ataxia. Aphasia and incoherence present. Patellar reflex increased. Plantar reflex absent. No ankle-clonus. Pupils equal but contracted. Argyll Robertson pupil present. Urine negative.

Treatment and Results.—Wassermann reaction made Nov. 25, 1911, was found to be positive. Patient improved somewhat physically following admittance, but remained noisy and unchanged mentally. Jan. 20, 1912, he was given 0.6 gm. of salvarsan intravenously. He became quieter in a few days but showed no mental improvement. Wassermann reaction, made February 20, was still positive and salvarsan was given again, March 11. Slight mental improvement followed this and he ate and slept better. June 7 the Wassermann was still positive. He remained in good health and was quiet and well behaved until the latter part of September when he became disturbed, becoming very combative and unruly. November 7 Wassermann reaction found to be still positive. At present he is slowly declining mentally and physically. In this case we seem to have a slight temporary improvement both mentally and physically followed by the return of the usual symptoms of the disease.

1. Trowbridge, E. H.: Subcutaneous Injections of Salvarsan in General Paresis, THE JOURNAL A. M. A., March 2, 1912, p. 609.

CASE 5.—*History.*—M. H., a painter, single, aged 29, admitted to hospital Nov. 8, 1911. Family history negative. Previous health good up to one year before admittance when symptoms of mental trouble appeared and he became suddenly violent. Cause of trouble given as syphilis. Patient greatly disturbed and troubled with many delusions and auditory hallucinations on entering hospital.

Physical Examination.—No physical defects present. Fairly well nourished. Alimentary and respiratory systems normal. Heart and valves normal. Arteries slightly hardened. Pulse 96, regular, weak. Gait steady. Slight ataxia present. Aphasia and incoherence present. Patellar reflex increased. Plantar reflex increased. No ankle-clonus. Pupils contracted. Argyll Robertson pupil present. Urine negative.

Treatment and Results.—Wassermann reaction was made Nov. 25, 1911, and found doubtful. Wassermann reaction was made on blood and spinal fluid, December 12, and both found positive. Patient improved somewhat mentally and physically following admission and ate and slept better. Feb. 26, 1912, he was given 0.6 gm. salvarsan intravenously, and March 20 the Wassermann was found to be still positive. Salvarsan was repeated March 26, 1912. Patient slowly improved following the second dose of salvarsan, and the Wassermann made April 11 was found to be slightly positive. He was discharged April 27 by request and passed from observation. At time of discharge patient was in good physical health, quiet, and had but few delusions, but his mind was enfeebled. In this case there was marked improvement following the use of salvarsan, but from previous experience, I anticipate a return of the symptoms and decline of patient with a readmission to hospital in near future.

CASE 6.—*History.*—E. W. J., aged 26, an undertaker, married, admitted to hospital Nov. 11, 1911. Family history negative. Previous health good up to about a year and a half before admission, when he became unbalanced mentally and forged a signature to a small check, was sent to the penitentiary for a short time and paroled. On admittance patient very noisy, combative and delusional.

Physical Examination.—No physical defects present. Fairly well nourished. Alimentary and circulatory systems normal. Gait steady. Slight ataxia present. Aphasia and incoherence present. Patellar reflex increased. Plantar normal. No ankle-clonus. Pupillary reflex reduced. No Argyll Robertson pupil. Urine negative.

Treatment and Results.—Wassermann reaction was made Nov. 25, 1911, and found to be positive. Patient improved slowly mentally and physically following admission, and Jan. 26, 1912, 0.6 gm. salvarsan was given. Three days after administration of the salvarsan, patient had a convulsive seizure followed by a partial paralysis of the entire right arm and leg which lasted about a week when full use of arm and leg was recovered. February 9 a Wassermann was made on both the blood and spinal fluid and found to be positive. Improvement continued, and March 11 patient was again given 0.6 gm. of salvarsan. Wassermann reaction made in June still positive. Condition continued to improve, and Oct. 27, 1912, patient was paroled home in very good physical health and much improved mentally, though his mind was enfeebled. In this case, as the Wassermann reaction remains positive, I believe that sooner or later active symptoms will reappear and that the patient will have to return to the hospital.

CASE 7.—*History.*—W. S., a printer, aged 42, married. Admitted to hospital Dec. 14, 1911. Family history negative. Previous health good up to a few months before admittance, when symptoms of mental trouble appeared. On entering hospital patient under the influence of liquor, but quiet. Admitted having syphilis of about fifteen years' duration.

Physical Examination.—No physical defects present. In good physical health. Alimentary and respiratory systems normal. Heart and valves normal. Arteries slightly hardened. Pulse 120, regular and weak. Gait steady. No ataxia present. Slight aphasia present. No incoherence. Patellar reflex increased. Plantar normal. No ankle-clonus. Pupils contracted and unequal. Argyll Robertson pupil present. Slight trace of albumin in urine.

Treatment and Results.—Wassermann reaction made December 19, positive. Patient remained in good health and in fairly good shape mentally excepting one systematized delusion of vast tracts of land which he owned. Jan. 17, 1912, patient was given 0.6 gm. salvarsan. Condition remained unchanged till February 4, when he became disturbed, and slight ataxia appeared with a marked muscular tremor which lasted for forty-eight hours. March 2 he was given second administration of salvarsan. March 20 Wassermann reaction still positive. He failed slowly following this and became disturbed every few days and at times combative. November 7 Wassermann reaction was taken and found positive. The patient's slow decline continued and at present he is very delusional, mind greatly enfeebled, and at times filthy and untidy. In this case the patient seemed to be getting along fairly well until a few days following the use of salvarsan, when he began to decline and the course of the disease seemed to be intensified by the continuation of the treatment.[1]

CASE 8.—*History.*—J. P. B., man, aged 36, single, no occupation given, admitted to hospital Nov. 16, 1911. Family history negative. Patient in good health up to about year before admission, when he began failing mentally. Cause of mental trouble not known.

Physical Examination.—No physical defects present. Fairly well nourished. Alimentary and respiratory systems normal. Heart and valves normal. Arteries hardened. Pulse 72, regular and weak. Gait unsteady. Ataxia present. Slight aphasia present. No incoherence. Voice paretic. Patellar reflex absent. Plantar increased. No ankle-clonus. Pupils dilated and unequal. Argyll Robertson pupil present. Urine negative.

Treatment and Results.—Wassermann reaction made Nov. 25, 1911, was positive. Patient slowly failed mentally and physically following admission, becoming filthy and untidy at times. March 4, 1912, he was given 0.6 gm. of salvarsan. March 20, Wassermann reaction negative. Improvement set in physically and mentally and he gained rapidly in weight and mind seemed much improved till the middle of May, when he had a temporary set-back and became disturbed for a few days. Improvement continued following this, and the Wassermann reaction made November 7 was found to be slightly positive. At present he is much improved over his condition on admittance but is slowly failing, ataxia becoming marked and mind growing weaker. This case shows a decided improvement immediately following the use of salvarsan, but as we see the effects of the salvarsan slowly wearing out, by the return of a slightly positive Wassermann followed by the decline of the patient, we must admit that the benefits of its use are but temporary; and a repetition may possibly help or may intensify the destructive course of this disease.

One has but to glance at these cases, if they may be taken as examples, to see that salvarsan in the treatment of paresis is as far from giving us any hope for permanent cure as are those drugs relegated to the waste-basket of the past because tried and found wanting. Some slight improvement has followed in a few cases and a crowding of the treatment has, as seen, done naught but intensify the destructive action of this disease and actually hastens the patient's death.

The results obtained by modern methods of diagnosis have accomplished wonders for us in the study of this disease, especially the now universal test of the patient's blood by the Wassermann reaction. Its use brings home to us more and more the saying that civilization and syphilization go hand in hand. More than this, the findings obtained in the examination of patients with this dreadful disease give us practically 100 per cent. of positive results, showing beyond a doubt that paresis itself is primarily a disease of syphilitic origin.

1. Jan. 6, 1913: The patient has had over thirty convulsions during the past two days. Death is expected at any moment.

Statistics show that insanity is increasing at a rapid rate. Syphilis has been found to exist in cases not thought of heretofore. Paresis, incurable as it stands to-day, is cutting off more and more men at the height of their careers, and we stand helplessly by seeing the patient slowly fail and die in such a depleted condition that words fail to convey the horrible picture except to those who have come in contact with this dreadful scourge.

Since Jan. 1, 1911, there have been admitted to my service in the hospital eighty-eight cases of general paresis among the male patients. Of this number thirty-six have died, ten have been paroled by request, and those remaining are constantly losing ground.

At present there are but two ways of working toward the eradication of this disease. The one with which we can accomplish the most is the education of the public in knowledge of the future evils of syphilis and how they may be prevented by immediate treatment. The other rests with those who are devoting their time to scientific research, and who will sooner or later discover the intermediate process or toxin which is causing this disease, and give to the world a curative drug.

NARCOTIC ADDICTION — A SYSTEMIC DISEASE CONDITION

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Too little study, observation and effort to interpret physical manifestations have been given to those unfortunates suffering from narcotic addiction. We have neglected their disease in its origin and subsequent progress and have formed our conception of them from fully developed conditions and spectacular end-results. We have seen them during or after our fruitless efforts at treatment, their tortures and poor physical condition overcoming their resolutions, until they plead for and attempt to obtain more of their drug. We have seen them exhausted, starved, with locked-up elimination, toxic from self-made poisons of faulty metabolism, worn with the struggle of concealment and hopeless resistance, semi-irresponsible beings, at present or soon to be inmates of institutions affording custodial care.

Our literature pictures them as weak-minded deteriorated wretches, mental and moral derelicts, pandering to morbid sensuality; taking a drug to soothe them into dream states and give them languorous delight; held by us all in despite and disgust, and regarded as so depraved that their rescue is impossible and they unworthy of its attempt.

We have ignored or misinterpreted intense physical agony and symptomatology, and regarded failure to abstain as evidence of weak will-power or lack of desire to forego morbid pleasure. We have prayed over our addicts, cajoled them, exhorted them, imprisoned them, treated them as insane and made them social outcasts; either refused them admission to our hospitals or turned them out after inefficient treatment with their addiction still fastened to them. They have realized our failure to appreciate their condition and to offer help for it, and have, after desperate trials of quacks, charlatans and exploited "cures," finally accepted their slavery, and by regulation of their drug and life, maintained unsuspected as nearly normal an existence as possible, or, broken and impoverished, given up the struggle. From these last we have painted our picture. Confined and observed by the institution alienist, or concealed as family skeletons in many homes, descriptions of them have given to the whole class of narcotic addicts their present status — cases of mental disease due to drug action or habit deterioration and based on inherent lack of mental and moral stamina.

It was with the above conception of these conditions that I began my work in the Alcoholic and Prison Service of Bellevue Hospital, attracted not by hope of helping "jags" and "dope-fiends," but by the mass of general clinical material admitted to those wards. When I left the service after sixteen months of day and night observation, with personal oversight and attempt to care for about a thousand patients a month, my early and faulty conception was replaced by a settled conviction that these cases were primarily medical problems. I realized that the patients were people sick of a definite disease condition, and that until we recognized, understood and treated this condition, and removed the stigma of mental and moral taint from those cases in which it did not exist, we should make little headway toward the solution of our problem.

It is a fact that the narcotic drugs do afford pleasurable sensations to many of those not yet fully addicted to their use, and that this effect has been sought by the mentally and morally inferior purely for its enjoyment and in the same spirit that these individuals yield themselves to other morbid excesses and indulgences. This class is, however, self-eliminating, and its members rarely present themselves for treatment.

There is, however, from my observations, obtained in Bellevue Hospital and in private practice, another class, including a large proportion, if not a majority, of narcotic addicts, in whom there is no inherent mental or moral inferiority, often men and women of high ideals and worthy accomplishments, whose knowledge of narcotic administration is, in many cases, first gained by withdrawal agonies following cessation of medication, who have never experienced pleasure from the drug, normal mentally and morally, unquestionably victims of a purely physical affliction.

In the literature on narcotic drugs I found very little as to their action or as to the manner of production of symptomatology in those habituated to their use. This experience has been paralleled by some of my patients, physicians of high standing, for many years unknown addicts, and zealous searchers for any information as to their affliction which might offer them hope of cure. The literature on narcotic addiction is notable for a persistent effort to interpret drug action in an addict by its observed action in normal men and animals, attributing to supposed enjoyment plus direct action of the drug, plus hypothetical mental and moral taint, the clinical picture of chronic drug addiction.

Since realizing the foregoing, I have been endeavoring to search out and explain from study of the individual addict and his corroborated testimony, and from clinical observation of his disease, the phenomena and symptomatology peculiar to addiction, and to formulate a theory for their production which would give a rational basis for therapeutic effort. Morphinism is the best example of pure addiction, created in most of the patients who seek treatment independently of environment and of personal characteristics. I shall, therefore, in this paper, confine myself to a discussion of morphinism, leaving the application of my conclusions to alcoholism and other narcotic problems for future consideration.

That morphin addicts acquire tolerance for morphin and can take without immediate untoward effect many times the lethal dosage is a well-known fact. Explanation of this tolerance has been attempted on two main hypotheses:

1. The formation of an antitoxic substance.

2. Increased power of the body to oxidize morphin.

1. As to the formation of an antitoxic substance, Hirschlaff[1] claimed to have produced an antitoxin against morphin. Morgenroth,[2] working in Ehrlich's laboratory, failed to confirm Hirschlaff's findings and argued against the existence of an antitoxin. Cushny[3] states specifically that the attempt to find "antimorphin serum" has proved fruitless.

2. Concerning increased power of the body to oxidize morphin, Faust[4] came to the conclusion as the result of his well-known experiments on dogs that tolerance toward morphin depended on an increased power of the body to destroy morphin.

It is my opinion that, however much increased oxidation aids in the handling of morphin, it is to the formation of an antitoxic substance that we must look for explanation of our clinical manifestations and for the classification of morphin addiction as a definite medical entity. This opinion is based on certain clinical manifestations of morphin effect and the symptomatology attending insufficient supply of morphin to those addicted, on certain phenomena observed during and following treatment, on the persistence of tolerance and on the susceptibility of the cured patient to the re-formation of addiction.

Morphin action as commonly observed following therapeutic administration or in animal experimentation gives no conception of its manifestations in the man or woman grown tolerant of its use. Very many have never experienced the pleasurable sensations to the enjoyment of which is widely attributed their indulgence. In practically none of them, once tolerance and organic dependence are completely established, do these sensations occur. The immediate effect, depending on the extent of tolerance and the reaction of the patient, in dosage not excessive for the individual, is apparently support to function, stimulation to circulation, maintaining of nervous balance and relief of impending collapse. It is used in a large majority of the cases simply and solely for its supportive and stimulant action, and a certain amount for each morphin addict becomes as much of a definite need and a necessary and integral part of his daily sustenance as food or air. The dream states and other sensuous results are part of the minor toxic action of the drug, against which the addict is nearly or completely immune, and to the securing of which very many, and probably a majority, of the innocent or accidental addicts have never carried their dosage.

In a recent paper[5] I noted the fact that for each addict a definite amount, varying with his condition of health, elimination and physical and mental activity, satisfied a definite body need. I showed that on this amount he could be put and kept in good physical and mental condition under normal circumstances of environment, exertion and general hygiene. Years of efficient activity and upright responsible lives, accomplished by well-known men, unsuspected addicts, bear witness to this fact. An addict neither underdosed nor overdosed defies detection. Less than the definite amount needed for nervous and circulatory organic balance deprives the patient of reaction, places his vitality and energy below par and for a long time hinders his betterment. More than this amount displays the inhibitory effects of morphin, locks up secretions and body functions, and causes malnutrition, autotoxemia and the consequent mental and physical deterioration commonly and erroneously attributed to the direct action of the drug.

The symptomatology attending insufficient supply of morphin to a morphin addict has, so far as I know, never been studied and analyzed in detail and adequately interpreted. W. Marme[6] attributed the symptoms to the toxic action of oxydimorphin. Rudolph Kobert,[7] however, states that Ludwig Toth subjected Marme's claims to subsequent testing and was unable to confirm them, and that his own results agreed with those of Toth. They found that oxydimorphin was inert by subcutaneous injection and that when thrown into the bloodstream it formed an insoluble substance causing emboli, so producing the symptoms observed by Marme. Kobert seemed to be in accord with the earlier findings of Magendie, that oxydimorphin is non-toxic.

After addiction is once established, failure to administer the drug causes a chain of definite symptoms, varying in priority of onset, in sequence and in relative violence of manifestation in different cases. In a general way, they may be said to begin with a vague uneasiness and restlessness and sense of depression; followed by yawning, sneezing, excessive mucous secretion, nausea, uncontrolled vomiting and purging, twitching and jerking to violent jactitation, intense muscular cramps and pains, abdominal distress, marked cardiac and circulatory insufficiency and irregularity, pulse going from extremes of slowness to extremes of rapidity with loss of tone, facies drawn and haggard, pallor deepening to grayness, exhaustion, collapse and, in some cases, death.

During my work in Bellevue Hospital I was struck with the similarity in clinical picture between these cases of acute morphin need and cases of acute poisoning from mineral, vegetable and autotoxic substances. Acute morphin need is clinically typical of intense suffering and prostration from the action of some powerful poison. Its symptoms cannot be due to morphin, for the administration of morphin relieves them, and relieves them exactly in ratio to the amount of morphin administered. They can be held at any given stage by gradation of the morphin dosage. Their manifestations, moreover, are exactly opposite to morphin effect. They are to my mind best explained as due to the action of some toxic substance, antidotal to morphin, prepared by the body for its protection in response to continued morphin overdosage, as antitoxins are prepared for the neutralization of the organic poisons of invading bacteria.

This hypothesis would explain the establishing of tolerance, the manifestations following morphin administration and the apparent definiteness of the amount of morphin needed. It would explain the results of underdosage and the results of overdosage above noted, and the non-interference with function or general health when a certain amount is adhered to, an amount exactly sufficient to neutralize the effect of some exactly antidotal body.

1. Hirschlaff: Berl. klin. Wchnschr., 1902, xxxix, 1149.
2. Morgenroth: Berl. klin. Wchnschr., 1903, xl, 471.
3. Cushny: Pharmacology and Therapeutics, Ed. 5, 1910, p. 222.
4. Faust: Arch. exper. Path. u. Pharm., 1900, xliv, 217.
5. Bishop, E. S.: Morphinism and Its Treatment, The Journal A. M. A., May 18, 1912, p. 1499.
6. Marme, W.: Centralbl. f. klin. Med., Leipsic, 1883, iv, 241, and Deutsch. med. Wchnschr., 1883, ix, 197.
7. Kobert, R.: Lehrbuch der Intoxikationen, 1893, p. 567.

On this theory also can be explained the sequelae and the relapses occurring after most of the cases treated by slow reduction and final withdrawal, or by withdrawal which has been too rapid with treatment too severe and not administered with due appreciation of the patient's organic need or consideration of his reactive abilities and physical condition. These convalescent patients are in a condition of restlessness, discomfort, vague pains, mental depression, lowered physical stamina and vitality. They have a sense of lacking support which is accentuated to the experiencing of actual morphin need by overexertion, worry, strain, etc., and persists for weeks and months after no morphin has been taken. The above are mild withdrawal symptoms, and would seem to be explained by a continued manufacture of antidotal toxic substance causing a low-grade chronic poisoning. They can be duplicated in an active morphin addict before withdrawal by administering an amount of morphin slightly below the amount of need and leaving unneutralized a small amount of the antidotal toxic substance.

There remains to be explained the continued production of this substance after discontinuance of the drug which called it into being. If it is indeed a substance antidotal to morphin and manufactured by the body as a protection against that drug, there must be, following ordinary methods of treatment, a retention somewhere in the body of a residue of morphin or its product uneliminated and unchanged in its essential characteristics, sufficient to keep in moderate activity the manufacture of antidotal toxic substance. That some such residue does exist I hazarded in a previous paper.[5] It seemed to me probable that there is in the morphin addict a progressive acquisition of tolerance and an accompanying inhibition of eliminative function in the cells of the body, especially in the liver, and that locked up in these tolerated and atonic cells is a deposit of morphin or morphin product not susceptible of ordinary elimination. I would now further offer the hypothesis that this residue acts by keeping in activity the manufacture of an antidotal substance.

Results of treatment give further evidence of the existence of an antidotal toxic substance and of an uneliminated morphin residue being the immediate stimulus to its continued manufacture. Free cholagogue catharsis distinctly reduces the amount of morphin need and increases the time over which a given dose will continue to hold the patient in balance. I have never been able to secure this result with catharsis which did not include cholagogues, giving stools of marked bile content. Under adequate elimination there is finally, as I have previously described,[5] a sudden and marked change in the patient. Within the space of a few hours there is complete cessation of desire for morphin, and a recognition of whatever discomfort is present as alien to the manifestations of morphin need and not demanding it for alleviation. Purging beyond the ability of the patient to react and eliminate adequately will not cause this cessation of desire. This is likely to occur in cases in which asthenia or high organic dependence on the drug plus marked inhibition of function are shown and in which the drug is too rapidly withdrawn and too severe catharsis administered without adequate recognition of physical condition and competent appreciation of powers of response. In these cases the eliminative function of the liver is apparently exhausted before the morphin residue is disposed of; immediate subsequent catharsis only drains fluids from the intestines, and morphin need is reduced only to that amount required when adequate elimination becomes exhausted. It would seem, therefore, that the cellular atonicity and inhibition of eliminative function governs the amount of retained morphin residue, that the amount of morphin residue is the deciding element in the quantity of antidotal substance constantly produced, and that this quantity of antidotal toxic substance constantly produced governs the extent of morphin need.

Evidences of the existence of the mechanism above described are further seen in the results of therapeutic effort preceding and subsequent to the phenomenon of cessation of desire. Before this change occurs drugs other than morphin fail to exhibit any effective action in the control of symptoms. Following this change, however, discomfort, sleeplessness, poor cardiac action, nervousness, pain, etc., if present, can be adequately controlled by our common therapeutic measures. The obvious deduction is that preceding cessation of morphin need, the predominating symptoms are due to the action of some toxic substance, exactly antidotal to morphin and requiring morphin for its control.

A further argument for the mechanism of addiction above suggested lies in the apparent continuance of tolerance to morphin existing after long abstinence from the drug, and in the susceptibility of the former addict, subsequent to the elimination of his physical need for morphin, to the re-formation of that need on slight indulgence in the drug. Histories of patients who have returned to their addiction show that some of them have, after months of abstinence, suddenly resumed their drug use at the excessive dosage of their previous indulgence, and have done this without marked toxic symptoms. For example, a patient, J. W., gives a history of having been abstinent for seven months and of having suddenly resumed his morphin use at his previous dosage of 4 grains three or four times a day. He states that he took 11 grains by hypodermic during the first twenty-four hours of his relapse, and that except for a transient attack of vomiting and drowsiness following his first dose he showed no toxic symptoms. He says that the manifestations of effect were those attending administration of morphin during his previous addiction, being those of satisfaction, support and stimulation, and that they were immediately reestablished. Cases in which small doses have reawakened need are numerous. Apparently large dosage robbed of its toxic effect and even of the morphin manifestations usual in subjects who have never been made tolerant, and small dosage being sufficient to reawaken physical need for continued administration are conditions which do exist and persist for indefinite periods. The resemblance between this continued tolerance and the conditions existing in diseases conferring immunity and having a generally accepted antitoxin mechanism is too close to be ignored.

It may be objected that in diseases showing definite antitoxin production there have never been observed signs of antidotal toxic symptoms and lack of balance between toxin and antitoxin effect. That these have never been observed is not proof that they do not exist. If present, they would be far less obvious than those attending insufficient supply of morphin. In the antitoxin-forming diseases there is constant and steady production of the exciting toxic substance, and not the variability of amount which occurs in the morphin addict, in whose case the toxic substance, morphin, is administered in amounts governed by personal interpretation of need, at varying intervals, and by the possibility of its procurance. As long as the addict can get enough of his drug and limits its amounts to those

organically required, and keeps his general health preserved, he does not show withdrawal signs. Nature has made no provision for the sudden withdrawal of poisons against which she has established protective action.

As to the character and actions of this hypothetic antidotal toxic substance, we must resort to speculation based on clinical observation and the results of treatment. Most of the various routines of treatment for withdrawal of morphin which have been devised, and which have given some success, have depended for their main drug effect on belladonna and its alkaloids, hyoscyamus and its alkaloids, and strychnin. They have been based on the giving of some or all of these drugs plus catharsis. The advocates of each method have been enthusiastic in their reports of results. These drugs, therefore, seem to supply some action useful in the withdrawing of morphin. What it is cannot be definitely stated. Belladonna and hyoscyamus dull sensation. All three in large doses increase peristalsis. It is possible that they have also a further action, and that by their administration is to be obtained action somewhat identical to that of the antidotal toxic substance. By thus supplying the action of the antidotal toxic substance it may be that we diminish the demand on the organs of its manufacture, and aid in the cessation of its production at the same time that we are getting rid of the exciting residue of morphin or morphin product locked up in atonic and tolerant cells, liver or elsewhere.

The hypothesis and theory above offered for the mechanism of narcotic addiction are based on clinical observation and study of the individual addict. That an antidotal toxic substance best explains our clinical picture and gives us basis for therapeutic effort is my conclusion. We have, so far as I am aware, no unquestioned laboratory demonstration of antibodies immunizing to narcotic drugs. That the animal body can produce substances conferring immunity to the effects of vegetable poisons has, however, been demonstrated. Dr. W. W. Ford[8] of Johns Hopkins University has, by immunizing animals, obtained antibodies to extracts of *Amanita phalloides*, the poisonous mushroom. That antibodies can be developed against opium products or other narcotic drugs is within the range of reason and of probability.

I would not have it concluded from the preceding that I consider all the symptoms occurring during the course of a case of morphinism as due either to the toxic action of morphin or to the toxic action of its autogenous antidote. As in all other disease conditions, so here we must deal with auto-intoxication, personal resistance, insufficiency or inadequacy in various organs or parts, to say nothing of the many cases presenting complications which must be recognized and dealt with. Also, as I have previously written,[5] there will be, in most cases, symptoms due to lack of balance and to sluggish readjustment during and following the withdrawal of a long-accustomed support to the circulatory and nervous systems. We have further to take into account, in some cases, temperament, mental and moral stamina, and the influences of immediate environment. These cases are often extremely complex and difficult to analyze, and for adequate treatment the symptoms and their origin must be appreciated as they occur in the individual case.

Routine treatment for all cases of any disease condition means unnecessary suffering during the course and vitiation of results in many if not a majority of those treated. Narcotic addiction is no exception. There must be, in each case, comprehension of intrinsic elements which accords with clinical facts, and appreciation of their relative importance; and there must be competent interpretation of symptomatology if we are to place our efforts on a rational basis and modify treatment to the needs of the individual.

We have not yet reached a satisfactory solution of our problem of narcotic addiction. The variety of points of view and of attitudes toward it demonstrates its complexity. Here and there isolated workers have given study to its medical aspects, and each has contributed somewhat to our better understanding. That there is a strong element of definite disease condition is more and more demanding consideration. By the formulation of the above theory and its application in treatment, I have been able, during the past few months, to obtain better results and in most cases a far more comfortable course. I offer it for what it may be worth in the hope that it may help others and stimulate to deserved consideration and scientific investigation of a neglected disease condition.

422 West End Avenue.

8. Ford, W. W.: Jour. Exper. Med., 1906, viii, 457.

SULPHURIC ACID CAUSTIC PASTES*

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CHICAGO

Sulphuric acid has been known at least since the fifteenth century, and doubtless it has been used as a caustic since that time, for its caustic action is its most obtrusive quality. It has long been the practice in order to prevent its spread beyond desired limits to make it into a paste by incorporating with it some inert solid substance. The practice is well described in Holmes' "System of Surgery":[1]

> For application to the sound skin the concentrated acids are somewhat too diffuse in their action; with a view to obviate this tendency, they are mixed with various inert substances, and made into the consistence of a paste; thus sulphuric acid is mixed with powdered sulphur, saffron or sawdust, and in this form it is far more convenient and manageable for the purposes above mentioned. The use of sawdust for this purpose originated with Mr. Syme.

Mr. Syme's directions as quoted in Holmes are:

> Concentrated sulphuric acid with about an equal weight of sawdust stirred into it, until the mixture assumes a homogenous consistence equal to that of thin porridge, is lastly applied, in quantity proportioned to the extent of thickness concerned. In the course of ten to twelve hours a slough will have formed, presenting the appearance of strongly compressed tow.

Mr. Syme also devised the very good plan of protecting the surrounding surfaces from the acid by painting them with liquor gutta-percha.

In addition to Syme's sawdust and sulphuric acid paste, there have been many others: Ricord's paste was sulphuric acid and powdered charcoal; Michel's, sulphuric acid and powdered asbestos; Velpeau's, sulphuric acid and saffron. Others are sulphuric acid and sulphur or lampblack. Mitchell[2] tells quaintly of his attention

* EDITOR'S NOTE:—At our request, Dr. Pusey has reviewed the history of sulphuric acid as a caustic, to supplement the report of the Council on Pharmacy and Chemistry on a proprietary preparation (see Propaganda for Reform department, this issue).

1. Holmes: System of Surgery, 1882, iii, 664.
2. Mitchell: Materia Medica, 1857, pp. 86 and 87.

being called to sulphuric acid in cancer, in a way which shows again that the modern faker is not so modern as we sometimes imagine:

> A miserable creature called at my house many years ago when I resided in a country village, introducing himself as a poor unfortunate doctor. . . . He begged me to make him a present of a lancet, as that would help him to a little money now and then for the operation of bleeding. I complied with the request. . . . Some four or five days after a letter came to my address from the same traveling doctor in which he thanked me most cordially for the lancet, adding a prescription for cancer with which I might make a fortune. It was simply to blacken sulphuric acid with cork, and call the mixture "Mitchell's Black Cancer Drop."

I have made pastes with sulphuric acid and various substances—charcoal, sulphur, lycopodium and lead sulphate. One can obtain an efficient caustic paste with any of them. With any of the following formulas—in which the proportions are given by weight—one obtains a stiff paste which gives up its acid rather slowly, so that its effect is more easily controlled:

1. "C. P." sulphuric acid	45
Precipitated sulphur	55
2. "C. P." sulphuric acid	60
Powdered charcoal	40
3. "C. P." sulphuric acid	25
Lead sulphate	75

The only procedure necessary to make such a paste is to rub up the mixture into a homogeneous mass. A proper consistence is that of a stiff paste, of about the stiffness of a thick lime mortar. If one wants a quick and deep caustic effect, the paste should be thinner, that is, have a little more loose sulphuric acid. In practice the effect of such a paste is controlled by the duration of its application and the thickness of the layer of paste used. An application for a few minutes will produce slight destruction. If the paste is left on the surface until it completely neutralizes itself—for several hours—it produces an eschar which is, roughly speaking, twice the thickness of the layer of paste applied.

The effect of a sulphuric acid paste is sharply localized; there is no hemorrhage and little likelihood of infection in the lesion; localized pain is moderate for three or four hours, and there is a good deal of subsequent inflammation.

A sulphuric acid paste may be effectively used for destroying lesions in the skin. In my opinion, however, it is not a desirable agent to use for the removal of blemishes or when one needs to consider cosmetic results, for two reasons:

1. The extent of its action is not easily estimated, so that unnecessary destruction is likely to be done, with correspondingly unnecessary scarring. Any one who has removed moles or warts with sulphuric or nitric acid will appreciate this difficulty.

2. All of the mineral acids, particularly sulphuric, I believe, when used on the skin, are not infrequently followed by keloids or unsightly hypertrophic scars. I know of a number of such scars which have lately been produced by sulphuric acid paste. Trimble[3] recently called attention to a series of such scars in his experience following the application of nitric acid, and in the discussion of his paper Dr. James C. White called attention to the fact that according to his impression these accidents more frequently followed sulphuric acid applications.

A sulphuric acid paste is not, therefore, in my opinion a preferable means for removing cutaneous blemishes, in view of the eligible methods at our command. Even for the treatment of lesions in which effectiveness is the chief or sole end aimed at, as in epithelioma, I believe it is not a preferable caustic; for such lesions the caustics most used, and, I believe, the best ones are zinc chlorid, caustic potash, acid nitrate of mercury and, for lesions not covered by epidermis, arsenious acid in paste form.

If one wishes to use a sulphuric acid paste, however, one will find pastes such as I have given above easily prepared and efficient.

7 West Madison Street.

3. Trimble: Jour. Cutan. Dis., November, 1911, p. 576.

A SIMPLE METHOD OF BLOOD-TRANSFUSION

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AND
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DETROIT

During recent years much has been written on the subject of direct blood-transfusion. In addition much valuable experimental work has been done, and many different instruments and methods have been devised by different investigators in order that the difficulties always present in this form of surgical procedure might be more easily overcome. Even with the advances made, however, this portion of surgery has been mastered by only a few, and even the well-trained and well-equipped operator will sometimes find difficulty in obtaining the desired results.

Direct blood-transfusion has recently attained much popularity because, in proper cases, the results are so rapidly satisfactory as to be startling. As has been the case in most surgical procedures, this operation has fallen into some disrepute because it has been applied in cases in which there was no rational indication for its performance; but during the last few years the indications for its application have become more thoroughly recognized, and it must from now on be a procedure that every surgeon should be competent to carry out.

Formerly it was thought that in order to obtain the best results an artery of the donor and a vein of the recipient should be used. The arterial pressure was supposed to render it more certain that the blood would flow properly and that a larger amount would be received in the same length of time than when a vein of the donor was used. Later it was ascertained that the vein-to-vein anastomosis was of equal efficiency, and consequently this method, because of its simplicity and less injury to the donor, has come more into favor.

Recently Soresi[1] has shown that the belief that vein-to-vein anastomosis is the one to be preferred rests on an anatomic basis, and he has also given a lucid explanation why the jugular vein of the recipient should invariably be the vessel of choice. Soresi has also incorporated in his article a clear statement of the character of cases in which direct transfusion is indicated.

While the technic of direct transfusion is not difficult for one who has had special training and practice, yet at times difficulties will arise that render the operation almost impossible to perform; and again, it is not always possible to obtain the services of a surgeon who has had sufficient experience in this branch of surgery.

1. Soresi: New York Med. Jour., Nov. 9, 1912.

For this reason the case herewith described seems to us worth reporting, because of the success of a method so simple as to be within reach of any one at any time.

REPORT OF CASE

Baby P., born Nov. 10, 1912, after a normal labor, was seen in consultation with Dr. W. P. Manton, the attending obstetrician, on the morning of November 13. About twenty-four hours before she had begun vomiting small quantities of blood, which were at first supposed to come from the mother's breast; but during the previous night the hemorrhages had become more profuse and when seen in the morning the baby was vomiting large clots and passing considerable quantities of clotted blood from the bowel. There was also some oozing from the oral mucous membrane. The general condition was still good. The only normal serum immediately available for administration was a powdered horse-serum prepared for experimental use by Parke, Davis & Co.; 10 c.c. of this were given subcutaneously at 10:30 a. m. Shortly afterward 40 c.c. of blood were drawn from the father's arm and left to clot to obtain serum for further injection. The separation of serum was slow, so that it was not ready for injection until late in the afternoon.

The hemorrhage during the day was only moderate, and it was thought that the horse-serum was having a good effect. Toward evening, however, the vomiting and passing of blood became more frequent, and the quantity unusually large; 15 c.c. (all that had separated) of the father's serum were injected, but the hemorrhages continued up to 8 p. m., when the baby appeared completely exsanguinated and it was evident that blood must be supplied. It was decided that Dr. Vaughan should attempt direct transfusion by Crile's method. The baby's median cubital vein when dissected out was found to be so collapsed and colorless that it was at first difficult to assure ourselves that we had not mistaken a nerve for it. The cephalic vein of the father was next exposed, and after prolonged effort the small child's vein was attached to a Crile forceps. The procedure was even more difficult with the father's vein, which proved to be equally small. When the anastomosis was finally completed the vein of the donor, although freed from clot, refused to bleed. The large basilic vein was then opened at the elbow, but even this would not bleed sufficiently to be of any benefit when opened in the wound, even before an attempt was made to insert the cut end in the clamp. The difficulty in adjusting the child's vein properly was caused by its being so much smaller in diameter than the lumen of the clamp. The Crile method having proved inapplicable in this case, we were forced to abandon it. The baby by this time was cold and practically pulseless. Frequent injections of physiologic salt solution into the exposed vein brought the pressure up for a short time only. Immediate action being imperative, we concluded to try taking blood from the vein of one of us into a glass syringe and injecting it into the child's vein before clotting could begin. Though we were both somewhat doubtful of our ability to do this, we found that in fact it was easily managed in quantities of 10 c.c., the capacity of the syringe. Two guy sutures of 00 catgut were inserted in opposite sides of the cut vein of the recipient. The forearm of the donor was painted with iodin and the needle of a 10 c.c. all-glass syringe into which 1 c.c. of physiologic salt solution had been previously drawn was inserted into the basilic vein compressed by a bandage above, and the syringe nearly filled with blood; 0.5 c.c. more of saline was drawn in. The sharp needle was changed for a blunt one and the blood then injected rapidly into the child's vein. We thought best to follow the blood injection immediately by one of salt solution. In fifteen or twenty minutes the first injection brought about a distinct improvement in the previously imperceptible pulse, and as no untoward effects appeared, 10 c.c. more were injected. Following the second injection the pulse improved steadily in character, so that, although we were prepared for further injections, they proved to be unnecessary, and by morning the child was apparently out of danger, there having been no further hemorrhage since two hours after the injection of the father's serum. Recovery from this time was rapid and uneventful. The total amount of fluid injected, in the form of serum, salt solution and blood, was not accurately measured, but was probably between 120 and 150 c.c.

We were much impressed with the ease of this method of injecting blood into the circulation, and the rapidity with which it could be accomplished as compared with any of the ordinary processes of transfusion. The exact time was not noted, but certainly two minutes would more than cover the period between the insertion of the needle into the donor's vein and the completion of the injection of 10 c.c. into the child.

While the coagulation-time of normal blood is given in various text-books as from five to ten minutes, yet it has been our experience in tests with the Wright method that frequently the time is much shorter. Many bloods will coagulate in three or three and one-half minutes, which, however, should be ample time in which to carry out the above-described procedure, provided the recipient's vein has been properly prepared beforehand.

It is our intention to make further study of the availability of the method, with the idea of developing a special syringe, and possibly of applying some simple method of prolonging the coagulation-time of the blood. Under ordinary circumstances, in applying the method, it would probably be advisable to test the rapidity of coagulation of the proposed donor's blood.

The above-described method is a positive one which can be applied to any vein. The technic is so simple that it can be undertaken by any one. It is especially applicable in such cases as the one cited, in which the amount of blood needed is relatively small, although there is no reason why it should not be applied in repeated small injections in any case, if care be taken to follow up each injection into the recipient's vein with a small amount of normal saline so that no clot will form in the lumen.

It is of course to be understood that in carrying out the procedure it is essential to work very rapidly, as the injection of blood in which clotting has commenced would be dangerous. For this reason the vein of the recipient must be dissected out and opened, and everything needful must be in readiness before beginning to draw blood from the donor.

THE EFFECT OF STRONG PURGING ON BLOOD-PRESSURE AND THE HEART *

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For years the treatment of anasarca, of edema and of ascites has been depletion of the body fluids. This depletion was brought about by diaphoresis, diuresis and catharsis. All these measures have a tendency to lower the blood-pressure, but especially is this true of catharsis. This indiscriminate use of strong cathartics for depletion of the body fluids in anasarca, with no control other than the disappearance of the edema, is unsafe. In many cases of anasarca with failing heart, and in many cases of edema due to kidney involvement, especially with the accompaniment of generalized arteriosclerosis, actual harm is produced. It is the experience of all clinicians that some patients in a "water-logged" condition do well when depletion is

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produced by strong cathartics, while others grow gradually worse. The question why some do well and others grow worse with this eliminative treatment ought to have some answer.

Sir James Barr[1] of Liverpool urges the danger in anasarca from failing heart, even in a condition approaching anuria, of causing profuse watery evacuations of the bowels with any cathartic. He says that many a death is thus caused by the depletion, the weakening and the terribly low blood-pressure caused by salines.

Ritter[2] in a study of the blood-pressure during a "Carlsbad cure" insists on the importance of keeping constant supervision over the blood-pressure during the spa treatment. He says that the blood-pressure declined systematically in all but two patients. The decline, he thinks, is undoubtedly due to the hypotonic mineral waters. This, he says, is sustained by the decline in the blood-pressure and heart in animals injected with salines.

W. Jaworski[3] notes the aggravation of heart disturbances or their first development in certain cases when attempts are made to relieve constipation by catharsis. By purging, the blood is drawn away from the surface, and the heart does not have sufficient blood to pump. He says that, if the heart is in good condition, as a rule no trouble follows; but on the other hand, if the myocardium is injured from any cause, symptoms of "reflex shock" develop. The external temperature declines, and the skin becomes pale and cold. The pulse becomes soft, and sometimes arhythmia develops. He says that in the old or in any one with arteriosclerosis the danger is relatively greater. He warns against the indiscriminate use of strong cathartics in the acute intoxications. He adds that a purge might serve as a test for latent cardiac insufficiency.

About two years ago it occurred to us to try the effects of strong purging on the blood-pressure, rate of heart-beat, character of heart-beat, etc. From time to time we selected individuals in whom this treatment was indicated, and others who were practically normal, who were informed of what we wanted to record, and who offered no objection to the treatment. In a study of this kind certain factors must be considered:

1. What is the effect on the blood-pressure? Is it lowered? If so, to what extent and how rapidly?

2. What is the effect on the pulse-pressure, that is, the difference between the systolic and diastolic pressure?

3. What is the effect on the rate of heart-beat and the character of the heart-beat?

4. What are the effects on the subjective symptoms of the patient, and what is his general condition during strong purging?

METHOD OF CARRYING OUT THE EXPERIMENTS

The patients were all kept in bed. On the day the experiment was to be done, the patients were given no breakfast. At 7 a. m. the blood-pressure, rate of heart-beat and character of pulse were noted. Immediately after this the patients were given the dose of the cathartic to be used in any given experiment. The pressure-readings and the character and rate of the heart-beat and pulse were taken at regular intervals. These intervals were each one hour for four periods and two hours for two periods. The experiments extended from 7 a. m. to 4 p. m. The pressure readings, etc., were taken again twenty-four hours later. At 11 o'clock the patients were given their dinner. When the bowels moved the patients were allowed to go to the water-closet. If they went to the water-closet near or at the time the readings should have been taken, sufficient time was allowed for the circulatory disturbances brought on by the exercise to return to the normal for that period before these readings were taken. The pressure readings were taken with the patient flat in bed with the arm and blood-pressure apparatus at the same level. The Faught instrument was used in the majority of the experiments, and the left arm was always used. At first the Erlanger instrument was used on the right arm, but as no constant differences in the two arms were noted, the right arm pressure was discontinued. The method of reading the systolic and diastolic pressures was taken by the palpatory method for the systolic and the fluctuation of the mercury column for the diastolic. This method was replaced early in the experiments by the auscultatory method of Korotow, as this is much easier and more exact.

We found that the systolic reading is generally from 5 to 10 mm. of mercury higher and the diastolic about the same degree lower than the readings by the other method. Two readings were taken as rapidly as possible since variations in the pressure occur if the air-cuff is left on for too long a time.

The cathartics used were magnesium sulphate, sodium sulphate, sodium and potassium tartrate and compound jalap powder. The salts were used in saturated solution, an ounce or ounce and a half being given at 7 a. m. and 10 a. m.; 2 gm. of compound jalap powder were given at 7 a. m., and in some instances a second dose was given at 10 a. m. The dosage was rather large but not much greater than is used for therapeutic measures.

The object was to produce rapid and profuse catharsis. There are some differences in the action of these cathartics. These differences will be mentioned later. The results of our experiments with these cathartics will be given as a whole, in order to avoid lengthy and complicated tables.

RESULTS OF THE EXPERIMENTS

1. Effect of strong purging on the systolic pressure of those with high, medium and low initial pressures.

The systolic pressure was tested in 126 patients, of whom 109 showed a lowering of the systolic pressure varying from 5 to 35 per cent. Twelve showed practically the same blood-pressure throughout the experiment. Five showed an increase during the experiment. Twenty-four hours after the cathartic was given, forty-eight had a systolic pressure from 5 to 15 per cent. lower than before the cathartic was given. Twenty-six had practically the same as at the beginning. Only those who remained in bed were tested twenty-four hours afterward. The action of the cathartics was practically the same except that the compound jalap produced a more constant and greater lowering than the other cathartics. It also showed in most instances quite a decided lowering at the end of the twenty-four hours. It was found in this set of experiments that those individuals with a systolic pressure of 140 and above, the highest tested being 190, gave an average lowering at the fourth period of 23 mm. of mercury, or a percentage lowering of 18. Fifty-seven individuals with a pressure of from 110 to 140 gave an average lowering of 13 mm. of mercury, or a percentage lowering of 13.

1. Barr, James: Brit. Med. Jour., April 24, 1909.
2. Ritter: Ueber den Einfluss von Salzlösungen auf den Blutdruck und Blutdruckmessungen während der Karlsbader Kur, Deutsch. Arch. f. klin. Med., 1910, Nos. 1 and 2, p. 220.
3. Jaworski, W.: Heart Disturbances Induced or Aggravated by Purgatives, Wien. klin. Wchnschr., Aug. 24, 1911, p. 1207.

Thirty-four individuals with pressure 110 or lower gave an average lowering of 7 mm. of mercury, or a percentage lowering of 6.

The reason for making these calculations from the data made at 12 o'clock, or the fourth period, is that theoretically the maximum effect ought to be produced at that period by the second dose of the cathartic which was given at 10 a. m.

It was found, however, that in some of the patients the maximum effect was not produced until much later, which fact must, of course, keep our averages higher than otherwise.

2. Effect of strong catharsis on the systolic, diastolic and pulse-pressure, and the rate of heart-beat.

A study of these points was made on sixty-eight individuals.

The percentage lowering of the systolic pressure in this number, taken as a whole, was 17 per cent.

The diastolic pressure was lowered 8 per cent.

The pulse-pressure was decreased 24 per cent.

The number of heart-beats was decreased 14 per cent. as a whole. Fifty-six patients showed a decrease, nine showed an increase and five showed no change.

The patients frequently complained of dizziness on standing. Many of them complained of cold feet and chilly sensations during the purging. In a number of individuals arhythmias developed, particularly in those with sclerosis and a high blood-pressure, and in those with a low pressure at the beginning of the experiment.

If we examine these results we find that an average lowering for all cases is 18 mm. of mercury. The average lowering for those who had initial pressures ranging between 140 and 190 was 23 mm. of mercury. Those individuals who had a low initial pressure lowered only 7 mm. of mercury. The individual records show that many, perhaps the majority, have a much greater lowering than the general average. For instance, one lowered from 180 to 100; another from 170 to 120; another from 190 to 115; another from 120 to 80; another from 108 to 78, etc. It is in these extreme results that we most frequently find the development of an arhythmia or the increase of an arhythmia already developed. In these cases the heart more often increases its rate than in those in which the lowering is not so marked.

It may be these factors which cause some cases of edema due to heart disease and sclerosis to become more water-logged, when depletion methods, especially free catharsis, are used. An increased weakness of the heart is shown by 8 or 9 per cent. of the total, since the heart-beats increase in bed and the increase when standing is less than the normal increase.

The explanation of the facts brought out in these experiments is somewhat hypothetic. What causes the lowering of the systolic pressure? We must at once conclude that, in part, it is due to the removal of liquids from the blood. This decreases the total volume of the blood, and the pressure presumably must fall. This is shown by the experiments; as a rule the greater the number of bowel movements, the lower and the more rapidly the pressure falls.

Another fact must be considered as the cause of this decrease of pressure, namely, the distribution of blood during purging. The blood has undoubtedly been drawn from the surface to the internal organs, especially to the intestines and their blood-supply, the splanchnic vessels. The cathartics act as an irritant to the walls of the alimentary canal and produce perhaps an inflammatory reaction. This causes capillary and arteriole dilatation, and the blood collects in the splanchnic area. This is comparable to the experiment on the dog, in which the severed splanchnic nerves cause a fall of blood-pressure. The splanchnic vessels become engorged, and the pressure falls. The severing of the nerves has cut off the vasoconstrictor impulses which come from the cord, and the splanchnic vessels dilate. This theory is substantiated by the subjective symptoms of the patients, the dizziness, shortness of breath, cold feet and the cold, clammy feeling of the skin.

A third fact also must be considered, namely, the drugs used may have some systematic action which weakens the heart. Of course, it is conceivable that the withdrawal of the blood to the splanchnic area does not give the heart sufficient blood to pump. This might be followed by a weakening of the heart because it would not be properly nourished if arteriosclerosis were present. This is borne out by the fact that the old, especially with arteriosclerosis, may show cardiac weakness and arhythmia if catharsis is too severe. It also explains why an already failing heart often becomes weaker when strong purging is produced.

The fall of the systolic pressure in these experiments is far greater than the lowering of the diastolic pressure. This difference results in a 25 per cent. decrease in the pulse-pressure. It may be that in all cases when blood-pressure is lowered the diastolic pressure does not and cannot lower in the same degree as the systolic pressure. Again, it may be the increased viscosity of the blood during strong purging which causes the difference. F. Blunschy[4] says that violent exercise causes an increase in the viscosity of the blood, due to the loss of fluid in the perspiration. It is therefore probable that the viscosity of the blood increases considerably when loss of water is brought about by strong purgation.

The diastolic pressure of the blood is that pressure of the arterial blood at the end of diastole, or the relaxed period of the heart. During this period the blood is equalizing itself; that is, it flows forward into the arterioles and capillaries as fast as the conditions allow it. The factors concerned in its forward movement are the strength of the heart-beat, the resistance it meets in the arterioles and capillaries, and the viscosity of blood. If we grant the increased viscosity of the blood we have a factor which retards the forward movement of the blood, and thus the diastolic pressure remains relatively high because the ebb of the blood is less in diastole than normal. This increased viscosity may explain why diseased hearts often become worse and why latent weakness of the heart may be developed during strong purgation. As a result of this increased viscosity, the heart must pump harder to propel the blood forward, even in spite of the lowered pressure caused by dilatation of the splanchnics and the loss of fluid by the free catharsis.

The lowered number of heart-beats is difficult to explain. All the factors brought out in this discussion ought to increase the number of heart-beats. A marked lowering of the systolic blood-pressure is generally followed by a more rapid heart. If the heart becomes weakened because of poor nourishment, it ought to beat more rapidly. The withdrawal of blood to the splanchnic area, giving the heart less blood to pump, ought to cause it to beat faster. The change in viscosity would tend to weaken the heart because of increased work and possible interference with its nutrition, and as a result it ought to beat more rapidly. The only explanation then seems to be that the cathartics used either stimulate the vagus and cause the heart to

4. Blunschy, F.: Beiträge zur Lehre von der Viscosität des Blutes, Zurich, 1908.

beat more slowly, or lessen the excitability of the heart muscle, which would produce the same result.

Again, this slowing of the heart may be due to a reflex inhibition of the augmentor nerves of the heart. This inhibition may be brought about by the irritative action on the intestinal wall of the strong cathartics used. The nervous mechanism of the intestines is intimately connected with the sympathetic system through the splanchnic nerves, and through these the reflex inhibition is brought about.

This is borne out by the clinical fact that we often have a slow pulse in certain diseases of the peritoneum and peritoneal coverings of the intestine.

The result from this set of experiments, supported by the clinical fact that patients with diseased hearts may become worse on brisk catharsis, warrants the assumption that all cases in which severe purging is used for depletion of the blood ought to be controlled by watching carefully the blood-pressure, rate of beat, regularity of heart and the general condition of the patient.

Our thanks are given to the intern staff of Alexian Brothers' Hospital, especially to Drs. A. W. Stine and L. F. Kurykendall for aid in this work.

THE IMPORTANCE OF PRESERVING THE INTEGRITY OF CONTIGUOUS STRUCTURES WHEN OPERATING ON THE TONSILS

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The time was when almost any medical man felt competent to use a tonsillotome in the amputation of offending tonsils, and a fair proportion of patients thus operated on were sure to be disappointed in the results attained. About ten years ago when dissection and extirpation of the gland were first being practiced in some quarters, the new operation was viewed with much diffidence on account of the danger of hemorrhage and the difficult technic. Now, after the matter has been discussed at great length, and countless demonstrations of different methods have taken place, familiarity has induced many men of varying surgical attainments to attempt the enucleation of tonsils with about the same degree of ardor and indifference which characterized the use of the tonsillotome years ago.

The situation to-day comprises several good simple operative procedures based on correct surgical principles, and any number of fanciful variations amounting in some instances to positive absurdities. In recent years most of the discussion connected with the tonsil and adenoid operation has centered on the indications for surgical interference and how best to remove the organs. Strange to say, little has been said about the postoperative condition of these throats except to report the absence of obstruction, and freedom from inflammation. Supportive treatment before and after the operation evidently has not received the attention it deserves, and thorough preoperative general examination has not been the rule.

It is apparently a fact that lack of skill or total indifference as to the integrity of contiguous structures has been responsible for deficient function of those important muscles which constitute the velum palati. After healing, the results of operative trauma may be seen in some throats. A portion of a faucial pillar or practically all of it may be absent, and the contracting scar tissue which has replaced it will have drawn the velum to that side, necessarily interfering with its function. In some cases the uvula has been sacrificed. The velum palati is formed by the insertion or blending of the palatoglossi, the palatopharyngei, the azygos uvulae, the levator palati and the tensor palati muscles; and in itself or through these individual muscles has a diverse action. Deglutition, respiration, phonation and ventilation of the tympanum are all intimately dependent on this group of muscles. During respiration they are all at rest; during the act of swallowing all are in action; and at such times the eustachian tube is dilated through the action of the levator palati and tensor palati.

During the act of swallowing the palatoglossus muscles, which form the anterior pillars of the fauces, contract in such a way as to prevent extrusion of fluids or solids into the mouth, while the palatopharyngeus muscles, forming the posterior pillars of the fauces, assist in performing a similar function for the nose by acting with the other component muscles of the velum, drawing it upward and backward and closing the posterior nares. In speaking, these muscles are used in a variety of ways. Thus it is shown what important structures may be injured (sometimes unavoidably) in removing diseased faucial and pharyngeal tonsils. Mention should also be made of the possibility of injuring the cartilaginous orifice of the eustachian tube or excising a portion of the superior constrictor muscle of the pharynx.

Admitting that such an operation as the one in question has been faultlessly done, perfect local results are not likely to occur unless the granulating surfaces are frequently cleansed and astringents applied according to judgment until healing is assured. Reduction of exuberant granulations by mechanical means is sometimes advisable.

Such local treatment in small children, especially in the nasopharynx, is an impossibility, but I have always regretted my inability to use it.

Denuded areas in the nose and throat are always subject to moisture and all sorts of irritants; and nodules of poorly constructed connective tissue or contractile cicatrices may result from improper healing, causing pharyngeal obstruction, impaired muscular action or both. Dr. Pynchon of Chicago early called attention to the importance of postoperative treatment, and some others have emphasized it; but I have reason to believe that it has not been practiced so often as it should be, even in the matter of prescribing tonic and alterative measures.

One has only to follow these cases and observe the fauces with ordinary illumination for confirmation of the foregoing. In studying the nasopharynx with the mirror, the Hays electric pharyngoscope, or through a roomy nose, one may often see tags and nodules of new tissue, which should remove the conceit that we have done a perfect operation. Chronic catarrhal inflammation or actual obstruction may recur in such a case. In referring to obstructive new tissue, I am describing a situation in which absolutely all of the pharyngeal tonsil has been removed at the time of operation.

The defects following these operations are to be deplored, and our efforts should be centered on giving the patient true and proper function rather than simply to rid him of some diseased organs by a procedure which varies in its excellence according to the methods, talents and experience of the operator.

It is my view that many of the aforesaid drawbacks could be avoided by the suggested after-treatment and proper, careful technic in operating. Too little assistance, improper illumination, inefficient anesthesia, undue

haste, dissection in the midst of blood, unnecessary trauma and above all a deficient conception of the surgical importance of operations on the nose and throat, are contributing factors in what I have been attempting to describe. That the pendulum has already begun to swing toward conservatism is evidenced by some recent admissions of the ill results of indiscriminate operating. It is unfortunate, though inevitable, that reports must appear of fatal hemorrhage, lung disease, cervical adenitis, local infection, septicemia, impairment of the voice and subsequent quinsy and tonsillitis following tonsil removal; but I have reason to believe that few such complications would occur if the operator were fully capable in the dual rôle of physician and surgeon—certainly a patient would not be subject to tonsillitis or quinsy if the gland had been totally removed. Nevertheless, if the tonsillotome method were used as recklessly to-day as is the extirpation method, its record would undoubtedly show less to recommend it. Radical removal of a portion of the neck should be condemned rather than a radical removal of the tonsil. Neither should every tonsil be removed simply because it happens to exist.

Most patients are well satisfied with the conditions following the removal of tonsils and adenoids, because of the freedom from obstruction and recurrent infection; but could some know how much they are needlessly losing through impaired function of the velum and component structures, such surgery would be placed in the category of that demanding the most expert service.

A CRITICAL STUDY OF THE ALBUMIN REACTION IN THE SPUTUM OF TUBERCULOUS PATIENTS*

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The attention of the medical profession in the United States is being more and more directed toward a chemical study of the sputum in diseases of the respiratory tract, especially in an effort to discover easier and more reliable methods of accurately diagnosing some of these diseases. The trend of modern investigation was turned toward these channels by the pioneer work of the French school of physicians, and has since been continued by the laboratory workers of England and America. The chemical study of the sputum was begun in 1835 by a French physician, Biermier,[1] and his work was supplemented by his colleagues. One of the first results of this work was the discovery that albumin occurred in certain diseases of the respiratory tract and not in others. With this as a working basis, Roger and Levy-Valensi[2] attempted to discover the exact relationship between the presence of albumin in the sputum and diseases of the respiratory tract. Their published observations gave stimulus to other investigators entering the same field of research, and the problem was attacked by Geeraerd[3] of Brussels, Lecaplain[4] of Rouen, Dieudonné[5] of Lysin and Smolizanski[6] of Paris, not to mention almost innumerable other observers. After examining a large number of cases, 1,605, the unanimous conclusions of the French observers were that when the sputum gave a negative reaction for albumin, all possibility of the patient having pulmonary tuberculosis might be dismissed; that with a positive albumin reaction, the diagnosis was not absolute, but suspicious enough to warrant the patient being kept under observation and reexamined frequently; and that when the pulmonary lesions were active, albumin was always to be found in the sputum.

The amount of work done by the British medical profession was not as extensive as that of the French. Foullerton[7] of Glasgow was not wholly satisfied with the value of the reaction and reported adversely on its applicability. He examined 100 cases, applying to them four well-known tests for the detection of albumin, and considered a sputum to possess a positive reaction only when it responded to all four characteristic tests, namely, the nitric acid contact test, the heat and acetic acid test, the picric acid test, and the potassium ferrocyanid test. He noted that the amount of albumin in the positive cases was subject to variations within wide limits, and made use of the terms "abundant," "moderate," "slight," "a trace," and "nil." He drew the conclusions that in a great majority of cases of pulmonary tuberculosis the sputum contained albumin in considerable amount; but in a small proportion of cases, little or no albumin was found; that a positive reaction occurred in various diseases of the respiratory tract, e. g., bronchitis and pneumonia; and that the albumin reaction was not entirely reliable in diseases of the respiratory tract and only of limited value in pulmonary tuberculosis.

The work of the British and French observers attracted the attention of the American medical profession, several members experimenting with the reaction. B. G. Williams[8] reported the results of the reaction as applied to thirty-seven cases, which he checked up with a search for the tubercle bacilli in the stained smears. He found that in no case did he obtain negative albumin reactions in cases in which the tubercle bacilli could be demonstrated in smears. Works[9] of the Public Health Service reported a similar study of the sputum in 100 cases, and concluded that a negative albumin reaction in the sputum was an accurate means of excluding the possibility of pulmonary tuberculosis.

TECHNIC OF THE REACTION

I desire to call attention to a series of eighty-five cases which were recently examined at the Army Medical School in an endeavor to ascertain the degree of reliance which might be placed on a negative reaction. The sputum was obtained from the District of Columbia Tuberculosis Hospital, each sputum coming from a patient in whom the clinical signs were those of a pulmonary tuberculosis, and in whose sputum the tubercle bacilli had been found. Each sputum was examined for the bacilli and the albumin reaction. The technic of the albumin reaction was as follows: About 5 c.c. of the sputum were diluted with an equal volume of water, and 5 drops of glacial acetic acid added; the whole was shaken vigorously for five minutes and filtered through

* From the Pathologic Laboratory of the U. S. Army Medical School.

1. Biermier: Quoted by Roger and Levy-Valensi. See Footnote 2.
2. Roger and Levy-Valensi: Bull. et mém. Soc. méd. d. hôp. de Paris, July 23, 1909.
3. Geeraerd: L'albumino-réaction de l'expectoration chez les tuberculeux. Tuberculosis, 1910, p. 372.
4. Lecaplain: Note sur quelques cas d'albumino-reaction des expectorations, Presse méd., March 11, 1911.
5. Dieudonné: L'albumino-reaction. Société de médecine de Lysin, Rev. de la Suisse romande, March 24, 1910, p. 394.
6. Smolizanski: L'albumin dans les crachats des tuberculeux, Thèse de Paris, 1911.
7. Foullerton: The Albumin Reaction of the Sputum in Pulmonary Tuberculosis, Glasgow Med. Jour., July, 1912.
8. Williams, B. G.: Some Experiences with the Lessiur-Prirey Test, New York Med. Jour., Aug. 24, 1912.
9. Works, B. O.: The Quantitative Examination of Albumin in the Sputum of Pulmonary Tuberculosis, THE JOURNAL A. M. A., Oct. 26, 1912, p. 1537.

a fine filter-paper to obtain a clear filtrate. The nitric acid contact test was performed on the filtrate thus obtained. The use of glacial acetic acid was tested first as compared with a greater dilution of acetic acid and was found to act similarly, as with this dilution the strength of the acetic acid in the solution was only 0.003 per cent.

RESULTS OF EIGHTY-FIVE EXAMINATIONS OF TUBERCULOUS SPUTA

The series of eighty-five cases included thirty-two cases of the disease in its incipiency and fifty-three cases of advanced pulmonary tuberculosis. Of the thirty-two cases of incipient pulmonary tuberculosis, all showed the presence of the tubercle bacilli in smears, while the sputum was negative to the albumin reaction in six cases, and a faint or doubtful reaction was noted in eleven cases. Of the fifty-three cases of more advanced pulmonary tuberculosis, two cases gave a negative albumin reaction, while again twelve cases gave a doubtful reaction. The histories of the patients giving a negative reaction were carefully examined, all furnishing the dominant characteristics of pulmonary tuberculosis: gradual loss of weight, nocturnal sweats, rise in temperature, and dulness and râles over the apices and other portions of the lungs. Absolute diagnosis was afforded in two fatal cases, one of which was particularly instructive. On examination, the sputum was negative toward albumin, but there was some doubt concerning the presence of the bacilli. A second sputum was obtained two days later, the patient having had a moderate hemorrhage in the meantime. The bacilli were found in the second sample, but the albumin reaction was so slight that it might easily have been caused by the serum-albumin in the blood mixed with the sputum, following the hemorrhage. In about three weeks this patient died in a hemorrhage, and at autopsy typical tuberculous lesions were found.

Here then we have a patient within three weeks of a fatal termination from pulmonary tuberculosis, yet furnishing us with an absolutely negative albumin reaction the first time, and a very doubtful one the second time. In the second case death occurred, and at autopsy typical tuberculous lesions were found. In view of these facts I believe that there can be no doubt that patients suffering from an active pulmonary tuberculosis may and do eject sputa containing no albumin, and hence the search for albumin in the sputum is not to be relied on in the diagnosis of such pathologic conditions.

SUMMARY OF THE CASES EXAMINED

Stage of Disease	Cases		Albumin Positive		Albumin Negative		Albumin Doubtful	
	Total	Presenting Bacilli	No.	Per Ct.	No.	Per Ct.	No.	Per Ct.
Incipient	32	32	15	46.0	6	18.0	11	36
Advanced	53	53	39	73.0	2	3.8	12	23
Total	85	85	54	63.5	8	9.4	23	27

From a study of the accompanying tabulation it will be noted that by the aid of the albumin reaction alone we would be able to diagnose fifty-four cases as being tuberculous, provided the other signs and symptoms were those of pulmonary tuberculosis; in eight cases, trusting the information furnished by the negative albumin reaction would lead to an absolutely incorrect diagnosis; in the twenty-three doubtful cases we would again be forced to rely on the search for the bacilli in the sputum taken in conjunction with the typical physical signs and symptoms.

POSSIBLE SOURCES OF ERROR IN THE REACTION

As a result of the investigations in this series of eighty-five cases, we noted that the reaction was subject to certain variations in the end-point, which in my opinion vitally affects the value of the reaction. In a number of cases we noticed a "delayed reaction" on contact with the nitric acid. Often as long an interval as an hour would elapse before the ring would form. A characteristic albumin should form this ring immediately on contact. Closely allied to this phenomenon was a second, the "inconsiderable reaction," which showed so faint a reaction that many times there was doubt as to whether the sputum was positive or negative. These two reactions often occurred in sputa which were teeming with the tubercle bacilli in stained smears. There was doubt whether this delayed reaction and the inconsiderable reaction might not be due to some other substance in the sputum than albumin, which in time would give a reaction similar to albumin, such as elastin, etc.

Again a "diffuse cloudiness" was often noted rather than a clear-cut white ring at the zone of contact with nitric acid, this diffuse cloudiness occurring in certain sputa in spite of all efforts to avoid mingling of the filtrate and nitric acid. This cloudiness often did not appear for some time after the test was made, as much as an hour at times.

One of the greatest objections noted was the fact that the reaction will change when the sputum is allowed to stand, either at room temperature or in the ice-box. One sputum, in particular, was received late in the afternoon, and tested for albumin. It was negative. It was placed in the ice-box until the next morning, when it was again tested, showing a faint but distinct ring. On being allowed to stand about six hours at room temperature, it gave a very heavy ring. This showed that, in order to be reliable, the albumin test in the sputum must be performed on sputa that have just been ejected, and since in the majority of cases the practitioner is unable to examine at once the freshly ejected specimen, his results must be open to doubt on account of the age of the sputum and the possibility of its reaction having changed from the original, on account of age. The great desideratum in accepting newer methods of diagnosis in place of our old methods is that the newer shall be more easily interpreted and be more reliable than those which we are about to discard; since the albumin reaction does not fulfil this cardinal principle, it is unsatisfactory.

CONCLUSIONS

As a result of the careful study of eighty-five cases of clinical pulmonary tuberculosis, in which the examination for the tubercle bacilli has been positive in all the cases, certain general conclusions may be drawn:

1. In cases which have been clinically diagnosed as pulmonary tuberculosis, in which also the examination for the tubercle bacilli has been positive, we note that there was an absolutely negative albumin reaction in about 10 per cent.

2. The positive albumin reaction is admittedly of little value, since it may occur in any of a number of different diseases of the respiratory tract.

3. The value of an "inconsiderable" or doubtful reaction is questionable.

4. Practically all the albumin reactions are of no value in the routine diagnosis of pulmonary tuberculosis, (*a*) because the positive reaction occurs in many affections of the pulmonary tract other than tuberculosis, (*b*) because a negative reaction may occur in about 10 per cent. of positive pulmonary tuberculosis cases, (*c*) because with the test there are certain variations which would have to be eliminated in each sputum examined to permit of a reliable result, and (*d*) because in the case of an "inconsiderable" or "doubtful" reaction, one does not know in any given case how much importance to attach to the reaction.

DEATH FROM SPINAL ANESTHESIA

A. E. ROCKEY, M.D.
PORTLAND, ORE.

In reporting this case I am prompted by a desire to place on record the dangerous side of this valuable method of anesthesia. It serves to illustrate the truth of the statement that there is no safe anesthetic.

On the morning of the day when the fatality occurred I had for operation two cases of fracture which required Lane plates. The first patient was a man about 40 years of age, with an oblique fracture of the tibia which would not remain in place with an ordinary splint. Morphin, 1/6 grain, and scopolamin, 1/100 grain, were administered half an hour before the operation. Stovain was injected, and satisfactory anesthesia to the middle of the abdomen quickly followed. The Lane plate was applied, the wound dressed and splinted, and the patient returned to his bed in comfort. This operation was witnessed by the physician who had brought the second patient. He had never seen spinal anesthesia used before, and remarked that it was surely an ideal anesthetic.

His patient was a woman 60 years of age with a fracture of the femur at the junction of the middle and lower third. She had received the same dose of morphin and scopolamin as the man, and at the same time, having consequently had the dose about half an hour longer. She was scarcely quieted by it, and was sensitive to movement and fully awake, exhibiting no evidence of drowsiness. The ordinary dose of stovain was injected, and anesthesia appeared almost instantly. Within two minutes her face became pale, and she ceased to breathe.

Following the suggestion of Babcock[1] I immediately commenced artificial respiration, and had it continued by the interns and assistant. The heart action continued slow, but there was no respiration. After a while I intubated the trachea with a rubber catheter, and attached an oxygen generator. Artificial respiration in addition to the oxygen was continued for one hour and fifty-five minutes, at the end of which time the patient began to breathe naturally. I am certain that had it not been for Babcock's admonition I would have abandoned the effort as hopeless before this time. The patient did not, however, become conscious after she began to breathe, and no attempt was made to plate the bone. A long splint was applied, and she was sent to bed. At the time I left the hospital about noon she was breathing regularly, her pulse slow, but there was no return of consciousness. At 4 o'clock in the afternoon I received a telephone message from the hospital that she was doing badly, and instructed the nurse to call the same interns who had done artificial respiration in the morning. Their efforts were unsuccessful, and she died within half an hour.

There are certainly some unusual features about the case, but the rapidity with which respiratory paralysis followed the stovain injection must make reasonable the presumption that the final death, though occurring nearly six hours after the stovain injection, was actually caused by it.

329 Alder Street.

1. Babcock: Surg., Gynec. and Obst., November, 1912.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

SODIUM GLYCEROPHOSPHATE—Sodii Glycerophosphas.—Sodium glycerophosphate is hydrated sodium glycerophosphate, $Na_2(C_3H_5(OH)_2)PO_4.5\frac{1}{2}H_2O$, the sodium salt of monoglycerophosphoric acid, $H_2(C_3H_5(OH)_2)PO_4$, containing not less than 99 per cent. of hydrated sodium glycerophosphate.

White, monoclinic plates or scales, having a saline taste; odorless; easily soluble in cold and hot water; nearly insoluble in alcohol.

At about 60° C. (140° F.) it begins to lose its water of hydration; when strongly heated the salt yields inflammable vapors and at a red heat is converted into sodium pyrophosphate.

The aqueous solution (1 in 20) is alkaline to litmus and to phenolphthalein.

If an aqueous solution (1 in 20) be acidified with nitric acid, and an equal volume of cold ammonium molybdate solution added, it should remain clear for one hour. On heating, however, a yellow precipitate will be formed.

The aqueous solution (1 in 100) acidified with hydrochloric acid should not respond to the U. S. P. VIII time limit test for heavy metals.

The aqueous solution (1 in 100) acidified with hydrochloric acid on addition of barium chloride solution should show no distinct turbidity within one minute.

The aqueous solution (1 in 100) acidified with nitric acid should not show more than a slight opalescence with silver nitrate solution.

The aqueous solution (1 in 100) acidified with acetic acid should not become turbid within one minute on addition of ammonium oxalate test solution.

If 1 Gm. of sodium glycerophosphate be thoroughly triturated in a mortar with 20 Cc. of alcohol, the liquid filtered and the alcoholic solution evaporated spontaneously the residue, after drying over sulphuric acid, should correspond to not more than 1 per cent. of the weight of the salt taken.

If from 2 Gm. to 3 Gm. of the salt be weighed, disolved in distilled water and the solution titrated with half-normal hydrochloric acid, using methyl orange as indicator, the acid consumed should correspond to not less than 99 per cent. of hydrated sodium glycerophosphate.

Actions and Uses.—See Calcium Glycerophosphate.

Dosage.—From 0.25 to 0.65 Gm. (4 to 10 grains) in wafers, capsules or tablets or dissolved in water or syrup. Hypodermically 0.2 to 0.25 Gm. (3 to 4 grains) in normal saline solution.

Non-Proprietary Preparation:

Sodium Glycerophosphate, Monsanto.—Manufactured by the Monsanto Chemical Works, St. Louis, Mo.

VACULES DIGITOL.—This dosage form of an accepted proprietary article has been accepted.

Each vacule contains digitol 30 Cc. in sealed ampules.
The air in the container is removed before sealing, whereby, it is claimed, deterioration of digitol is retarded.

Therapeutics

TABES DORSALIS: LOCOMOTOR ATAXIA

While there is little new in the treatment or management of this progressive disease, and while many treatments have been supposed to cause remissions in the progress of the disease, it is well to note exactly where we stand to-day in the application of therapeutic methods in the management of this chronic, painful, progressive disease of the spinal cord. Toward this end reference may be made to the article of Dr. E. L. Hunt.[1]

1. Hunt, Edward L.: Am. Jour. Med. Sc., September, 1912, p. 398.

Hunt emphasizes the fact that the earlier treatment is commenced, the longer in abeyance will be active symptoms, and that the more rigidly the patient carries out his treatment, or perhaps the more persistently he continues his restrictions, the slower will be the progress of the disease.

The management of the life and activity of the patient is many times of as much value as active medicinal or physical treatment. Rest alone is an agent for good. It relieves weakness, prevents muscle tire and renders the patient better able to walk and less likely to have acute pains during his periods of activity. In other words, the patient, whether in the stage of more or less ataxia or whether in the beginning of the disease, must rest more hours during the twenty-four than the number to which he has been accustomed. The amount of this rest depends entirely on the patient's muscular weakness and the frequency and severity of the pains—the greater the weakness and the greater the frequency of the pain, the longer the rest each day. If the patient is not able to walk about or be at all active, he must have the fresh-air treatment in his room or on a veranda; he will not do well if he is closely housed. If cold weather causes the pains to be more severe, he should, if possible, go to a warmer climate.

Anything that increases the circulation in the limbs and dilates the peripheral blood-vessels helps these patients, and therefore massage and frequent warm baths are of value. Warmth brings the blood to the surface of the body and relieves the tendency to abdominal congestion or abdominal blood-vessel spasm. The value of electricity is doubtful, although gentle faradism to stimulate the circulation on the surface may be of some slight benefit.

The diet should be that which is the most readily digested with the least disturbance to the person; the patient should be individualized. If he is losing weight, such nutritives as olive oil, extra butter, cream and other fats should be given to endeavor to prevent the loss. Any particular food that is found to cause gastric or intestinal gas should be eliminated from the diet. Anything that tends to cause vasoconstriction, such as caffein and nicotin, is of disadvantage in this disease; therefore tea, coffee and tobacco should generally be prohibited absolutely.

Intestinal peristalsis is always more or less sluggish, or at least irregular, and laxatives are necessary. The laxative best for the individual must be determined. Salines are inadvisable if a patient is losing weight. Vegetable laxatives and laxative foods and laxative substances such as agar-agar are the ones that should generally be used.

Hunt enumerates the various methods of applying counterirritation to the spine, but we can probably rule out mustard plasters, cantharidal blisters and galvanism. Whatever good results can be developed from counterirritation will occur after cauterization. Cauterization of the spine has seemed to do good, at other times to fail utterly, but it may be tried.

Stretching of the spinal cord by means of suspension of the patient by his head and arms was thought for some time to be of benefit, and probably it often is. Hunt, however, states that this is accomplished as well and much more safely by the patient bending his body over his extended legs while he is sitting on the floor.

When the patient is ataxic much good can be done by regulated gymnastic exercises according to Fraenkel's method. These are mostly of course for the legs, but if the arms are ataxic, they may also be taught to become more efficient. Hunt urges that these exercises should be taken with the eyes covered, so that the patient will learn to walk or direct coordinate movements without the aid of the sight. He also thinks that no cane or support should be used during these exercises. This gymnastic work should not be carried on to the point of weariness, from ten to fifteen minutes once or twice a day generally being sufficient. Hunt says that women are less ataxic with this disease than men because they are used to wearing skirts and walking without the aid of the eyesight. These exercises carefully and persistently carried out are unquestionably of marked benefit in postponing and relieving ataxia.

It is still a mooted question how frequently locomotor ataxia can occur without having syphilis as its cause, but the majority of all cases of this disease will give a specific history or a possibility of specific infection. Consequently, the Wassermann test or some modification of it should be made in every case of tabes dorsalis; but Hunt urges the caution that the test be not taken too soon after the patient has been taking iodids and mercury, as these may prevent the test being positive.

While Hunt states that it is questionable whether any satisfactory results have occurred from the use of salvarsan in locomotor ataxia, it seems that it should be conceded that occasionally it has been of value. The danger of the arsenic hastening or causing optic neuritis and optic atrophy cannot be stated too frequently, and Hunt says that salvarsan should not be given if arsenic has been recently given the patient.

He believes that mercury should always be given as soon as it is decided that the cause is syphilis, the only contra-indications, in his opinion, being a beginning optic nerve atrophy, anemia, advanced cases, and those in which there is a positive intolerance to mercury. When the disease is advanced and with anemia the decision whether or not mercury should be used could perhaps be made according to whether or not the patient had recently taken large amounts of mercury. Sometimes a patient becomes less anemic under small doses of mercury. Hunt believes that the hypodermic method of its administration is the best, and inunction the next best method of its administration. Whether given coincidently with mercury or without mercury, iodid, best in the form of the sodium iodid, many times seems to prevent the advance of the disease and slow the optic atrophy, and to lessen the frequency of ataxic pains. The digestion and nutrition, however, should be paramount, and if mercury or iodid, or both, interfere with the digestion and prevent proper nutrition, they do more harm than good in locomotor ataxia.

As the most important and most troublesome symptom is pain, the various methods of preventing it or shortening it are of constant interest in this disease. The more rest, the better nutrition, the better digestion, the less constipation and the better general elimination that can be secured for the patient, the less frequently do these terrible pains occur. As long as it is possible to withhold it, morphin should not be given, but if the pain is severe and the suffering intense, there is nothing but morphin that will stop it. It must be given in good-sized doses, hypodermatically. Such patients do not readily form the morphin habit, as generally these severe attacks do not occur frequently. Of course the precaution should always be taken that the patient does not give himself the hypodermatic injections; they must be given either by the physician or by a nurse. Codein may at times be a good substitute for morphin, but if the pain is severe it will fail unless used in very large

doses. Salicylates have sometimes been thought to prevent or postpone these attacks. They should be tried, especially if there are any associated joint pains. The various "coal tar" products have all been used, and as they all act more or less similarly, it is not necessary to consider any of these drugs other than the official acetanilid and antipyrin; no other will act any better. Sometimes these are very successful. When the pain is not intense, but there is a general soreness and stiffness and tendency to cramps, local treatment of the region involved with dry cups, liniments, cautery, massage and faradization are enumerated by Hunt and are all of value.

The gastric crises when they occur are stopped only by morphin. If chloral or bromid is used the dose must be so large that morphin becomes much the safest drug. Hunt recommends cerium oxalate in 5-grain doses every half hour for these gastric disturbances. We must take exception to the value of this drug, as the crystals can do nothing but irritate the mucous membrane. The drug is not soothing, can never do anything that bismuth subcarbonate could not do better, and should be dropped from the Pharmacopeia. Strychnin is suggested, but it hardly seems that strychnin would be indicated in pain or muscle contractions caused by a disease of the spinal cord. As soon as the pain in the abdomen has ceased, that is, when the spasm has relaxed, brisk catharsis should be caused.

A most frequent troublesome complication is insufficiency of the bladder, and later perhaps paralysis of the sphincters. If cystitis occurs, it must be treated properly, and it may be prevented by hexamethylenamin. Proper antisyphilitic treatment may cause a bladder to improve much and become sufficient again. If it becomes paretic, rubber urinals must be worn, catheterization may be necessary, and bladder washing may be the future.

If optic neuritis has once occurred, it may be slowed or stayed by general and antispecific treatment, but it cannot be improved. Sometimes local treatments have been tried, but probably are of questionable value.

When the joints become affected but little help can be given them, as various local treatments, except possibly cauterization, have been proved to be of but little value. Electrical treatments of such joints are of no value.

DISTURBANCES OF THE HEART

(Continued from page 367)

MANAGEMENT IN ARTERIAL HYPERTENSION

The above-enumerated causes of hypertension suggest its prevention, its cure or its amelioration. To prevent the condition the physician must constantly preach greater care of patients after serious illnesses, less severe athletic competition, less tobacco, less overeating, and, especially, fewer late dinners, less coffee and tea to those who need such advice, and more careful watching of pregnant women as to their food and their excretions, especially the urine, more prevention of intestinal indigestion and colon putrefaction, and if possible less strenuous life and more periods of rest and relaxation.

The very enumeration of these suggestions of prevention of hypertension names the conditions to be investigated and corrected when hypertension is present: the removal of any cause that can be removed, such as nicotin, caffein, too much meat (if it should not temporarily be interdicted entirely), too much liquid of any kind (even water); more strenuous physical exercise, if the patient's habits are sedentary; warm baths, possibly even Turkish baths; better elimination by the bowels, that is, daily sufficient movements; and more rest, with relaxation—all these before physical or medicinal treatments are even considered.

It is a fact that mental as well as physical strenuosity raises the blood-pressure, and that fear, anxiety and even acute worry or sorrow may raise it. The patient's blood-pressure is lowered during the first part of sleep, at night or whenever he lies down and absolutely relaxes.

Brooks and Carroll[2] have shown that the greatest drop of blood-pressure during sleep occurs during the first part of the night's sleep; the blood-pressure then gradually rises, perhaps to reach its maximum the following afternoon. In other words, a sleepless night, or a night in which one is repeatedly aroused, does not give the normal diurnal lowering of blood-pressure, and it is these periods of relaxation that tend to ease the heart and the arteries. It is not the short-lived increased pressure that is serious; it is the continued increased pressure, or the continually repeated increased high pressure.

These investigators also showed that prolonged bed rest or a longer sleep did not tend to lower the pressure any more than the normal sleep and the normal rest, but that mental rest or psychic rest, or complete mental relaxation did lower blood-pressure at whatever time of day it was accomplished. We therefore come to the conclusion, as far as rest is concerned as a means to lower blood-pressure, that prolonged rest in bed if a patient is nervous, irritated or objecting is of no value, but vacation relaxation when one entirely forgets his business cares and irritations does reduce blood-pressure. In other words, vacations, even short ones, and repeated daily relaxations, if possible, are essential in the treatment of high pressure.

The physical methods of lowering blood-pressure are hydrotherapeutic, hot air (body baking), electric (autocondensation) and electric-light baths. If there is kidney disturbance, or while there are toxins in the blood still uneliminated, nothing can be of more value than various sweat baths, whether given by body baking, by electric light or by Turkish or Russian baths. Sweating is needed, especially if the patient is overweight and his heart is in good condition. Internal congestions are relieved, surface circulation is improved, capillaries are dilated, and the blood-pressure is temporarily always lowered. If the blood-pressure soon returns to a high mark, such treatments should not be too long continued, or if continued should be used only intermittently. Not infrequently, however, some patients are more or less permanently benefited by these treatments, the benefit lasting for months.

The autocondensation treatment always lowers the blood-pressure, but it must be repeated frequently, and the lasting effect of the treatment, unless the patient cooperates in every other way, is rather unsatisfactory. As an addition to other methods of lowering the blood-pressure it is excellent.

In line with the vacation treatment is the advisability, if possible, of selecting a change of climate to a warm one. Cold always increases the blood-pressure; consequently warm climates tend to lower it, and a patient with high blood-pressure in a cold climate will generally have his pressure lowered in a warm one. A corollary to this is that patients with high tension should be warmly clothed during cold weather, and more or less frequent warm baths are of benefit to them.

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2. Brooks and Carroll: Arch. Int. Med., August, 1912, p. 97.

The most positively successful way of reducing blood-pressure is by venesection, and this method should not be forgotten when the blood-pressure at any time is suddenly enormously excessive. How frequently it should be used in seriously high blood-pressure is a question, as many times the return to high pressure is rather rapid, even after such a radical measure. It is therefore doubtful if it is advisable, except when a heart is seriously in acute trouble, with a very high blood-pressure, and the danger of apoplexy or a congestion of the lungs or a paralysis of the heart is imminent.

Drugs to lower the blood-pressure are mostly nitrites, and of these nitroglycerin, sodium nitrite, erythrol tetranitrate and amyl nitrite are the ones used, and the frequency of their use to lower blood-pressure is in the order named. Other drugs used to lower blood-pressure are iodids, thyroid, alkalies, chloral and bromids.

The nitrites all more or less rapidly lower blood-pressure, but the lowering does not last long. The most intense action is from amyl nitrite, but the action from this drug is so rapid and so intense that it should not be used in ordinary hypertension. Nitroglycerin, especially in tablet form, which is the handiest method for its administration, loses its activity more or less rapidly with age. Well-made nitroglycerin tablets will generally be active for months. If given hypodermatically or dropped on the tongue nitroglycerin will act in from one to two minutes, the greatest intensity of its action occurring within a few minutes. The blood-pressure may be lowered temporarily from 20 to 30 mm. of mercury. The action is stated to last not much longer than half an hour. Such an intense action of nitroglycerin is not advisable and not needed in chronic hypertension. The best method of giving nitroglycerin for this purpose is after meals and on going to bed. Whenever it is given on an empty stomach it should be taken with a large amount of water, in order that the action may be slow, and, if possible, not felt by the patient; throbbing of the head is not desirable. The dose may be from 1/500 to 1/100 grain three or four times a day, or every three hours, as desired. While the blood-pressure may not be perceptibly lowered at first, many of the symptoms of hypertension are removed, even with the small dose named, and when 1/200 grain is given four or five times in twenty-four hours, with the rest of the management of the patient, the blood-pressure is decreased.

The dose of sodium nitrite should not be more than 0.03 to 0.06 gm. (½ to 1 grain). It is always best given on a full stomach, as it is likely to irritate. Its action is slower than nitroglycerin, and it does not ordinarily reduce the pressure quite so much, but such reduction often lasts considerably more than an hour.

Erythrol tetranitrate is thought to act more satisfactorily by some clinicians, its effects often lasting longer than the other substances. On the other hand, nitroglycerin seems to be as satisfactory as the other substances named.

To those clinicians who believe that these short reductions of blood-pressure are of little value in the treatment of hypertension, it should be said that even short periods of relaxation, causing reduction of pressure, to say nothing of the physiologic lowering of blood-pressure during sleep, tend to intermit the continued high pressure, and therefore act for good. It is not asserted that the nitrites will cause a continued low blood-pressure. A tolerance is soon established and the dose must be more and more frequently repeated if they are used to their full effect and with the given frequency. On the other hand, if a nitrite is administered four times a day, the blood-pressure often remains slightly lowered, and even a slight lowering of the blood-pressure is valuable. A blood-pressure of 120 mm. may be perfectly satisfactory to the welfare and ability of a person, and if for any reason his blood-pressure drops to 100, he is generally more or less seriously disabled. In other words, a lowering of the pressure even 20 mm. is of importance to a person with high pressure.

Interesting experiments have been made by Lawrence[3] on the systolic and diastolic fall of blood-pressure under the various nitrites, as well as by other measures. He concludes that the diastolic fall of blood-pressure from almost any method of treatment is approximately one-half the systolic fall, and that sodium nitrite reduces the diastolic pressure more rapidly than the more complex compounds.

It is sometimes noticeable that when there is no kidney lesion a very high blood-pressure shows more of a fall under nitrites than does a medium high pressure.

It has long been thought that small doses of iodids, doses that are not sufficient to cause indigestion, will act as vasodilators and render the blood more aplastic or alter the viscosity. This has been recently shown by Capps[4] not to be a fact. Capps concludes that iodids in therapeutic doses are not active vasodilators, and when long continued do not materially affect blood-pressure; also that iodids do not alter the viscosity of the blood to any marked degree. Of course these findings do not mitigate against their value in syphilitic sclerosis, or sclerosis from any cause. As previously stated in these articles, small doses of iodid, daily, stimulate the thyroid gland to greater activity, and one of its activities is to lower the blood-pressure.

If a patient is obese, or if there are other signs of subsecretion of the thyroid, and hypertension is present, thyroid is the proper medicament to give. The dose need not be large, and from 0.1 to 0.2 gm. (1½ to 3 grains) of an active thyroid preparation (the dried gland), given daily for a considerable length of time, will be of value in such instances.

In many instances the blood-pressure is lowered under the action of an alkali such as potassium citrate. It is quite probable that when an alkali is given the diet has also been regulated, and that the alkali may combat some acid irritants. In other words, alkalies may aid in combating gouty tendencies or uric acid tendencies, and these causes of hypertension may be ameliorated. At any rate, they are often of benefit.

Unless a patient had very high tension and for some reason other drugs were unsatisfactory or inadvisable, hydrated chloral would probably rarely be used; but hydrated chloral in small doses, 0.20 to 0.25 gm. (from 3 to 4 grains) given three times a day, after meals, sometimes diminishes the blood-pressure.

The blood-pressure is always lowered by bromids, but of course such treatment is rarely advisable. If insomnia calls for medicinal treatment, bromids and chloral and many other hypnotics will cause a lowering of the blood-pressure, and, if frequently used, may lower the blood-pressure more or less continuously. Such a lowering of pressure, however, is quite likely to be due to some weakening of the heart. In other words, active physical measures should not be taken to lower the blood-pressure while these active drugs are being administered.

(To be continued)

3. Lawrence: Arch. Int. Med., April, 1912, p. 469.
4. Capps, Joseph A.: THE JOURNAL A. M. A., Oct. 12, 1912, p. 1350.

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SATURDAY, FEBRUARY 8, 1913

ATHLETICS AND HEALTH

It is inevitable, we believe, that the problem of university athletics and the conduct of intercollegiate contests, to which we referred a few weeks ago,[1] should receive a more serious consideration from those who assume responsibility for these extracurricular features of American college life. Too often whatever savors of criticism of long-established practices is resented by the "interests" attacked, or ignored because it would abolish or modify some of the customs which are firmly implanted in our routine of life. Only after years of patient unremitting effort has the plea for a "safe and sane" Fourth of July led to a reform which will soon evolve into a nation-wide plan of rational celebration. Persistent exposure of the dangers of reckless football contests with their attendant fatalities cannot fail to bring welcome changes sooner or later. Signs of effective protest are already apparent, so that we may confidently anticipate the elimination of undesirable performances.

It happens that this is a most timely moment in which to inaugurate a campaign against the athletic recklessness of the past. Conservation is the key-note in campaigns of progress in all departments of national activity. Propaganda for the conservation of health and life is directly furthered by this more general spirit of the times. If college athletics of to-day are a menace to health, they cannot escape the attack of those who are alert for every evidence of human extravagance and waste. The day has gone by when university directors of athletics can overlook criticisms of performances, approval of which in the past has centered chiefly in their alleged hygienic value.

The Surgeon-General of the Navy, an officer who may be expected to look at the situation with unbiased mind and with a fund of expert information at hand, has made a serious charge against the ill effects of strenuous competitive athletics. An excess of disabilities involving degenerative diseases of the heart, arteries and kidneys occurs, he alleges, as the result of the overstraining and overtraining of spectacular athleticism. It will henceforth require more facts and statistics than the data commonly quoted regarding the expectation of life in college athletes or than mere impressions regarding a few Marathon runners, to settle controversies over the remote effects of the more active and violent exercises and sports.

In an address before the recent International Congress on Hygiene and Demography, Dr. R. Tait McKenzie,[2] professor of physical education in the University of Pennsylvania, and a strong supporter of the cause of college athletics, pointed out that the mere presence of a heart murmur has been considered so serious and disabling in character that the necessary activity of many young persons has been harmfully curtailed. He believes that its importance in the field of cardiac symptoms has been grossly exaggerated, and that too often the graver and more significant signs of heart weakness have been put too far into the background. An investigation disclosed murmurs after exercise in seventy-four out of 266 young men in apparently normal health. No marked difference could be found between men who led an active athletic life and those whose occupation had been sedentary. Dr. McKenzie maintains that the presence of murmurs in nearly 28 per cent. of normal young men even on slight exertion should lead to caution in giving an unfavorable prognosis when they are found immediately following severe strain or fatigue. The murmurs may appear or disappear on change of posture alone; and the facts presented are taken to illustrate the fallacy of diagnosticating heart damage from the presence of a murmur only. Dr. McKenzie contends that murmurs always appear and slowly fade away; after the most severe strain one can seldom find any measurable injury in a week's time in a heart originally sound, if the athlete has not passed 30; occasionally, however, they persist longer. He regards it as demonstrated that even severe athletic competition does not, as a rule, appreciably damage the circulatory apparatus, though its rôle in hastening the onset of arteriosclerosis is still difficult to determine.

These conclusions, from one of the foremost teachers of physical education in this country, deserve consideration and may be taken as fairly representative of the views of those who defend modern college athletics. To us, however, they seem far from convincing in respect to the advantage of extreme forms of exertion such as one sees exhibited in intercollegiate contests or similar performances. Athletics in the forms objected to must better justify their existence if their vogue is to be countenanced.

It seems to us that the enthusiasts for physical education have hitherto failed to emphasize the important distinction between those strenuous performances which tax the capacities of the organism to its utmost (comprehended in the term "athletics"), and that exercise of the bodily functions more appropriately included under the designation "physical education." Europeans

1. Effects of Strenuous Athletics in the Navy, editorial, THE JOURNAL A. M. A., Jan. 6, 1912, p. 40; A Further Report on Athletics and Health in the Navy, editorial, Ibid., Jan. 11, 1913, p. 131.

2. McKenzie, R. Tait: The Influence of Exercise on the Heart, Am. Jour. Med. Sc., 1913, cxlv, 69.

have a far happier expression for the employment of their bodily activities in the word "sport," which implies the combination of a healthy spirit of pleasure and satisfaction with what we call exercise. Such an attitude is almost unknown here. Instead, there exists a form of overdoing that finds its chief reward in the applause of the multitude rather than in the joy of the performance. For this unfortunate situation our teachers of physical education are by no means wholly responsible. "Athletics" have long been under the dominance of so-called "trainers," frequently men of keen judgment and technical skill, usually persons devoid of any systematic acquaintance with physiologic or medical truths. Their sole concern is to turn out a winning team or a victorious athletic giant. From these anomalous and domineering guardians of athletics has come the ridiculous "training-table," with its physiologic incongruities, teaching that beefsteak makes muscle and suppressing obvious stimulants from the dietary while subtle ones are unsuspectingly introduced to whip up the jaded college youth. The best intellectual feature of rival contests — the encouragement for each man to put forth the best that is in him and to exercise his own ingenuity in the development and maintenance of an efficient, superior organism — is suppressed by the advent of that guardian saint, the trainer.

In his book on "Exercise in Education and Medicine," McKenzie says: "Physical education for college students must then include personal hygiene and the correction of remediable defects, the education of their physical powers to the highest point of efficiency, and the cultivation of those social qualities that can be taught through the agency of athletic activity better than by any other means." We fancy that this "social" feature of college athletics is far more insidious in its effects than appears at first glance. Many a man enters the gridiron and literally tortures himself to win coveted fame, only to find in succeeding years that he has failed to learn any sport or game that is an economic or physical possibility for him in his subsequent career. It would be a fortunate circumstance for many a college graduate consigned to a sedentary and confining occupation to have acquired interest and dexterity in some form of exercise or sport, such as rowing, tennis, boxing, fencing, etc., which could enable him to preserve some continuity between the bodily activities of his student days and his subsequent years. The physician often sees the situation which is here referred to. What is "physical education" or "athletics" doing to meet this need?

The men who present themselves as candidates for athletic teams not infrequently have unsuspected organic heart lesions, dangerous hernias, or incipient tuberculosis. This emphasizes that the examination of the physical condition of competitors should be put into the hands of more competent men than it all too frequently is. We shall continue to deplore the serious accidents in rough games, despite the statement of so prominent an advocate of athletics as Dr. McKenzie that "the chance of a twisted ankle or knee, or even a broken collar-bone or arm or leg, is one of the things that make such games attractive to the healthy young man."[3] We are ready to admit that the cultivation of physical intelligence furnishes a valuable asset to man in developing coordination and promoting health and happiness. But when the results of vigorous sports or exhausting struggles are involved, something more than a "pardonable pride in an expanding chest and swelling biceps" should furnish the guiding motive. The obvious abuses of athletics must be threshed out.

CHEMOTHERAPY OF PNEUMOCOCCUS INFECTIONS

The history of the treatment of pneumonia by drugs consists of a series of false, usually poorly grounded hopes, and the subsequent disillusionment. Characterized by a sudden spectacular crisis, and a great variability as to mortality in different epidemics and in different groups of cases occurring at the same time, pneumonia offers more pitfalls for the unjudicial, optimistic and credulous therapeutist than almost any other disease, and as a result the proposed systems of "specific" treatment are legion. A review of the history of the drug treatment of pneumonia by Felix Rosenthal[4] brings out the wide range of medicaments used, and the poor grounds on which the advocacy of most of them has rested. It would seem that of all drugs for use in pneumonia only quinin has persisted in finding advocates from the earliest to the most recent times. Among these advocates have been men of large experience and recognized ability, notably Aufrecht. This has served to direct the attention of those in the new field of chemotherapy who are investigating the treatment of pneumococcus infections, to quinin and its derivatives, especially as compounds of this class have already been investigated in connection with the chemotherapy of trypanosome infections.

These studies have come chiefly from Morgenroth and his associates, who had worked with these compounds, had noted resemblances between pneumococci and trypanosomes in regard to their behavior with bile salts, and who collated these facts and the clinical repute of quinin in pneumonia. With this background, they undertook an investigation to determine whether or not the derivatives of quinin which had been found effective in trypanosome infections might be effective against pneumococci, or at least might serve as a starting-point for work on pneumococcus chemotherapy. They had learned that against trypanosomes quinin itself was less effective than certain derivatives, hydroquinin and hydrochloriso-quinin, whose relation to quinin is shown by the follow-

3. McKenzie, R. Tait: Exercise in Education and Medicine, Philadelphia, 1909, p. 190.

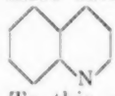
4. Rosenthal, Felix: Ztschr. f. Chemotherap., 1912, Part 2, p. 1149.

ing graphic formulas of the side-chains of the quinin molecule in which the sole differences exist:

:CH.CH:CH_2 quinin.

:CH.CHCl.CH_3 hydrochlorisoquinin.

:CH.CH_2.CH_3 hydroquinin.

These two compounds were found entirely ineffective against pneumococci, but more favorable results were obtained by modifying the  or quinolin group of the quinin molecules. To this group in quinin is attached a CH_3O group, which can be replaced in hydroquinin by a C_2H_5O group, forming "ethylhydrocuprein," a compound which was found to be very active in pneumococcus infections in mice. By injecting an oil solution of the free base subcutaneously, which permits of a suitable rate of absorption to secure the maximum effects from the drug, it was found possible to save from 80 to 100 per cent. of mice given subsequently a lethal dose of pneumococci; favorable but less striking curative effects were also obtained with infected mice. Quinin itself is quite ineffective under these conditions, as is the hydroquinin; but a propyl derivative was of considerable activity, although somewhat less than the ethylhydrocuprein. It is interesting that, just as trypanosomes tend to become resistant to chemicals used unsuccessfully to destroy them ("drug-fast" is the term used to describe this condition), so too the pneumococci surviving treatment with ethylhydrocuprein produce strains resistant to this drug.

As yet little has been done in human pneumonia with this drug, which produces such striking results in experimental animals, and the results so far obtained are not all that could be desired. Fraenkel thought that an undoubted effect was produced in many cases, but Wright could see no favorable influence. A serious complication was a severe but transient amblyopia, observed in three of twenty-one patients treated with ethylhydrocuprein, an occurrence which again emphasizes the necessity for extreme care in the use of new compounds on human subjects. From these results it is evident that the experimental work so far conducted on a specific chemotherapy for pneumonia has not advanced beyond the earliest stages, and that it is still far from practical therapeutics. But it is important that a definite advance has been made in the application of chemotherapeutic principles to bacterial infections, and we have every reason to hope that eventually the goal will be reached. The results obtained in so brief a time are encouraging.

THE STOMACH IN HUNGER

The hundredth anniversary of the entry of one of America's pioneer medical investigators, Dr. William Beaumont, into the practice of medicine was fittingly commemorated last year by the publication of a biography of merit prepared by Dr. Jesse S. Myer[1] of St. Louis. The devoted efforts of this undaunted man of science — a backwoods physiologist, as Osler has suggestively designated him — have furnished the inspiration to a number of successors to repeat the observations which Beaumont made on his famous subject Alexis St. Martin, the man with the "lid on his stomach." It happens that most of the subsequent opportunities — at least those which have arisen since the days of the modern antiseptic surgery — have been cases of gastric fistula which was the intentional outcome of gastrostomy operations performed to relieve a complete occlusion of the esophagus. They have therefore differed from the classic instance of St. Martin in affording a chance to study the stomach and its secretions in man without any complicating factors introduced by the contribution of the saliva or other materials which would ordinarily pass down the esophagus and mingle with the gastric contents.

Recently Professor Carlson of the University of Chicago has experienced the fortunate circumstance of securing a young man in normal health who for the last sixteen years has fed himself through a permanent gastric fistula owing to complete closure of the esophagus as the result of accidentally drinking a strong solution of caustic soda. On this exceptional subject Carlson[2] has investigated the movements of the stomach by the technic which the physiologic investigator of to-day employs; and he has furnished some interesting and conclusive contributions to the physiology of hunger.

There have been diverse theories of hunger from earlier days to the present era. Until quite recently it has been widely believed that hunger is essentially a general sensation with a local reference to the stomach. In ultimate analysis this would mean that the metabolism of the body cells in connection with their functional requirements modifies the make-up of the circulating blood so that this in turn alters the excitability or activity of those elements of the nervous system, central and peripheral, which govern the activities of the entire digestion-complex. This modified situation produces, in the hypothesis here contemplated, the sensation of hunger. In more rudimentary terms this might mean that as time passes food substances disappear from the blood, and consequently the nerve cells, "suffering from the shortage of provisions," give rise to the sensation.

Cannon has vigorously combated this view, and maintains that hunger is not a general sensation.[3] The sharp onset of its pangs and the abrupt arrival of the characteristic ache which many have noted could scarcely be the expression of a general bodily state; for this does not change with such critical suddenness. Neither will the general sensation theory explain the intermittency of hunger which is frequently observed. Cannon's

1. Myer, Jesse S.: Life and Letters of Dr. William Beaumont, C. V. Mosby Co., St. Louis, 1912, pp. 317.

2. Carlson, A. J.: Contributions to the Physiology of the Stomach: I, Am. Jour. Physiol., 1912, xxxi, 151.

3. Cannon, W. B.: The Nature of Hunger, Harvey Society Lectures, 1911-1912.

experiments[4] lead to the conviction that hunger results from powerful contractions of the stomach. With this general view the observations which Carlson has now been able to make on his new fistulous subject are in accord. He notes that the empty stomach exhibits, at least during the first twenty-four hours after a meal, two types of rhythmic movements: one is relatively feeble but continuous; the other falls into periods of relatively strong contractions. The latter involves the fundus. In confirmation of Cannon the individual contractions of the continuous rhythm are recognized as hunger pains. There is a close correspondence between the intensity of the hunger experienced by the subject and the amplitude of the contractions of the empty stomach simultaneously registered. There may, however, be considerable motor activity of the empty stomach without any definite sensations of hunger. The latter are due to the stimulation of afferent nerve fibers in the muscle layers.

It is interesting to learn evidences of alterations in the tonus of the central nervous system concomitant with, or as a result of, the sensation of hunger. Thus during the strong contractions of the stomach the knee-jerk is greatly augmented. Fluctuations in vasomotor tone occur; and Carlson suggests that the close association between the vasomotor center and the bulbar tonus center may explain the feeling of faintness experienced in strong hunger by many persons. The strong "hunger contractions" of the empty stomach are promptly inhibited by chewing palatable food and by stimulation of the gustatory nerve endings in the mouth. The inhibition is merely temporary; it appears sooner, but does not last so long as the secretion of gastric juice following this stimulation. Accordingly the gustatory stimuli, which are so commonly emphasized as the occasion for "psychic" secretion of gastric juice, lead to "psychic" inhibition of the gastric tonus and movements and the attendant hunger sensations. According to Carlson the mere sight or smell of food, or any kind of olfactory stimulation, does not appear to affect the stomach movements of a hungry man.

The stomach contractions (and the hunger sensations) are not influenced by the introduction of therapeutic quantities of a variety of drugs such as epinephrin, phenol, chlorbutanol, etc. Familiar beverages — water, coffee, tea, beer, wine and brandy — on the other hand cause inhibition, water appearing to have the least effect in this direction. During the strong contraction periods bile frequently enters the stomach cavity; but the tests for pancreatic juice have always been negative. It appears that, in the earlier periods of hunger at any rate, the empty stomach is never completely at rest.

Hunger, or the lack of it, is a condition which at times commands the considerate attention of the practitioner. The absence of the sensation in fevers can now be referred to the total cessation of all movements of the alimentary canal in infection with systemic involvement. The pathologic inordinate hunger (bulimia) of certain neurotics is attended with disturbances in the tonic innervation of the alimentary canal. The fortunate physiologic observations on an occasional unfortunate individual serve a useful purpose in medicine by directing attention to numerous little-understood and hitherto unexplained gastric manifestations of disease.

4. Compare Cannon, W. B., and Washburn, A. L.: An Explanation of Hunger, Am. Jour. Physiol., 1912, xxix, 441.

THE HISTORY OF MEDICINE REVISED

Under the name of Paracelsus the history of medicine has become familiar with the career and teachings of Theophrastus Bombast von Hohenheim, a physician at one time professor in the university at Basel, who lived at the opening of the sixteenth century. There are probably few men of whom so much good has been written and who also have been so roundly censured and discredited as this man.

To understand the assumed place of Paracelsus in the teachings of his generation it must be recalled that the backbone of the study of medicine at that time was anatomy. The name of Galen carried the dominant authority; the work of Vesalius and his followers was coming into vogue. Paracelsus was essentially a medical chemist and one of the earliest pharmacologists, if indeed this designation is appropriately applicable to that period. He considered the relations between diseases and drugs; and the use of laudanum as well as of many other vegetable therapeutic agents is said to have been due to him. The names of zinc and bismuth appeared to have been first mentioned by Paracelsus, who also noted the bleaching action of the fumes of sulphur, and prepared hydrochloric acid from oil of vitriol and salt. These illustrations serve to indicate how radical and progressive must have been the activities of this student of the nascent science of chemistry in a day when the great teachers of medicine paid no heed to chemical learning, and the investigations of so-called science were pursued by ecclesiastics in solitude and retirement. Little wonder, then, if a physician like Paracelsus incurred the antagonism of the orthodox medical profession, which still accepted the sacred authority of Galen and others.

The doctrines for which Paracelsus is supposed to have been responsible have entered alike into the science of chemistry and the practice of the occult. The adjective "paracelsian" has crept into the language with a significance determined by the momentary bias and personal interpretation of the individual. The wide difference of opinions in respect to the merits of one whose name at one time achieved a prominence second perhaps only to that of Harvey is illustrated by a reference to the views of recent students of medicine. Park does not mince words in proclaiming Paracelsus as the most colossal figure in the collection of medieval charlatans and knaves. The potent influence of this sixteenth-

century physician and chemist is rated as retrograde rather than progressive; so that "although this man was such a prominent character in his day, his name must be erased from the list of those who have contributed to the world's progress." On the other hand, Sir Michael Foster, in his delightful lectures on the history of physiology, refers to Paracelsus in these words: "He may have been the turbulent, disorderly, noisy combative fellow that he is represented to be: often deep in his cups, and always, whether drunk or sober, ready to shout aloud that his opponent was an ignorant fool and idiot, and that he alone held the keys of truth. Even if he had not been this, if he had been modest, quiet and shrinking, he had laid hold of something which the ordinary doctors of his time ignored and despised, the beginning of that chemical knowledge which in later years was to become one of the foundations of their science and the mastery of their art."

During the years in which the warfare between the Galenists and Paracelsists was at its height attention appears to have been attracted to the publications of an alchemist, one Basil Valentine, a Benedictine monk of whose life little is known aside from what his writings teach. Although Valentine is reputed to have lived before the birth of Paracelsus, the printed books purporting to come from this obscure follower of the Benedictine order did not appear until long after Paracelsus' death. The marked similarity between the doctrines of the two men and the strange coincidences in the character of their chemical discoveries make it evident to any one who compares such data that one author must have drawn from the other or both from an unknown third source. In this way there gradually arose, in addition to the mass of legends derogatory of the ability and character of Paracelsus, an apparently justifiable occasion to explain the profound knowledge of chemistry which he possessed. His scholarship was attributed to the inspiration of Valentine's doctrines which he had probably early learned. Thus the best that Paracelsus had to offer to his times has been believed to be merely the borrowed treasures of a man of a generation before him who had long carefully concealed his identity.

It is a well-known fact that the estimate which posterity places on the men of history tends to be eminently more just and proper when it is formed long after the heat of passion has been dissipated, and after vision, dimmed by the changing prejudices of a day and generation, has been restored. The publications of Paracelsus mark him as a chemist of importance if they were derived from his own experience and not borrowed from some other source. The name of Basil Valentine has long stood to deprive Paracelsus of the glory of initiating a new school of biochemical thought and giving a better theoretical basis to some of the phenomena of medicine. Prof. John M. Stillman of Stanford University has now published an illuminating review of the controversy,[1] and has designated Basil Valentine as a seventeenth-century hoax. The writings of Basilius are undoubtedly forgeries, written years after the death of Paracelsus and borrowed not only from him, but presumably also from Agricola and minor writers whose works appeared in the latter half of the sixteenth century.

With the disappearance of the mythical personage called Basil Valentine—a name honored by chemical and medical historians to the present day—the name of Paracelsus will again receive the recognition which it appears to deserve through the verdict of modern scholarship. As Dr. Stillman says, chemical tradition is hard to divert from channels established for three centuries. But perhaps these newer scholarly researches into medical history will at length serve to modify our estimate of a picturesque man whose name has become a "by-word for fantastic thought" and even for charlatanry. Perhaps instead of designating the school which Paracelsus would have founded as a school of ignorance, dissipation and boasting—a school of medical dishonesty, as Park expresses it—we shall yet come to recognize in it the beginnings of our chemical physiology of to-day.

THE LIMITATIONS OF EUGENICS

In a striking address on "Heredity and Responsibility," delivered before the American Society of Naturalists,[2] the well-known biologist, Prof. Edwin G. Conklin of Princeton University, has called a halt to some of the doctrines which are being propounded on the authority of certain guardians of the "infant science," eugenics. The modern theories of heredity are profoundly influencing human thought and planning in various fields. Of late much emphasis has been placed on the intrinsic factors in development, and it is taught that not only race, sex and anatomic features are predetermined in the germ cell, but that character and behavior are also in good measure unalterably fixed by heredity—that "our reactions are predetermined by heredity and that we can no more control them than we can control our heart-beat." We formerly heard, Professor Conklin remarks, that all men were created free and equal; we now learn that all men are created bound and unequal. We were once taught that voluntary acts, if often repeated, become habits, and that habits determine character; we now learn that acts, habits and character were foreordained from the foundation of the family.

In this depressing hypothesis in which all is explained by heredity and there is no possibility of change or control, in which there is "hypertrophy of intellect and atrophy of will," there is an error from overlooking the fact that in all organisms the potentialities of development are far greater than the actualities. There

1. Stillman, J. M.: Basil Valentine: A Seventeenth-Century Hoax, Pop. Sc. Month., 1912, lxxxi, 591.
2. The address is reprinted in Science, Jan. 10, 1913, n. 46.

are illustrative biologic cases in which a small part of the body, when separated from the remainder, is capable of distinctive growth in a way that would not have been realized under the usual conditions of environment. Here development is determined by extrinsic factors. The hereditary potency of an organ or organism to develop is conditioned on the existence of a particular environment; but this cannot always be materialized, and therefore many hereditary possibilities are likely to remain latent. Professor Conklin has wisely emphasized that it is the environment which brings these out. No one will deny that functional activity is one of the most important factors of development. Use strengthens a part and disuse weakens it; and use or functional activity is a response to stimuli which may be external quite as much as they are predetermined or internal in origin. Latent capacities are brought out by often unanticipated surroundings, and habits are formed through superimposed experiences.

The unsatisfactory feature of the extreme modern doctrine of eugenics, important as its application to human welfare doubtless may be, lies in the dreary contentment with an alleged inevitable inheritance which it tends to inculcate. There is a loss of real personality. But proper environmental stimuli are certain to call forth unsuspected capacities and native endowments; hence we must hesitate to pronounce on the probable outcome of any union so involved in unknown hereditary elements as those which pertain to the human race to-day. "Society can safely eliminate its worst element from reproduction," says Dr. Conklin, "but it cannot wisely go further than that at present." We cannot predict the careers or capacities of the majority of children of given parents. "Giving advice regarding matrimony is proverbially a hazardous performance. . . . With a more complete knowledge with regard to the inheritance of human defects than we now possess, at least in many instances, it will probably be possible to give such advice wisely; but apart from certain bodily peculiarities, he would be a bold prophet who would undertake to predict the type of personality which might be expected in the children of a given union. Some very unpromising stocks have brought forth wonderful products."

Reflections of the foregoing order need to be brought home to the physician, because it is to him, perhaps, more than to any other member of society that the practical consequences of eugenics and the proposed remedial procedures are being referred. Let us therefore hesitate to charge all defects to heredity, to make men irresponsible, to hold that everything is predetermined. One antidote lies in "euthenics" or the science of controllable environment, in the appeal to develop the unknown possibilities of our inheritance. Such a doctrine brings vigor and inspiration. It gives a chance for self-discovery. Responsibility makes men wrest from themselves powers which otherwise would remain latent. Supposed defective inheritance or arrested development is sometimes merely the expression of some inhibition which can be overcome by intelligent control from within or without. "To most of us heredity has been kind — kinder than we know."

CARBON DIOXID AND THE CIRCULATION

Considerable importance has lately been assigned to carbon dioxid as a regulator of various physiologic processes in the body. Haldane especially has pointed out its preeminent rôle in the orderly maintenance of the respiratory activities, and made it clear that various functions in breathing are determined, within the normal range of variations, more by the changing content of the blood in carbon dioxid than by its richness or poverty in oxygen. Henderson, in this country, has argued for the necessity of taking into account the detrimental possibilities of acapnia, i. e., lowered content of carbon dioxid in the blood, in a variety of phenomena, among which the familiar cases of surgical shock are included.[1] According to Henderson by far the greater number of all deaths under anesthesia are fundamentally due to the acapnia exemplified in diminished carbon dioxid in the blood and tissues resulting from the excessive pulmonary ventilation during the stage of excitement.[2] This view has furnished the scientific basis for the method of rebreathing in anesthesia for general surgical cases, a procedure especially championed by Dr. W. D. Gatch of Baltimore.[3]

In order to accomplish an exact analysis of the action of a chemical agent such as carbon dioxid is under the conditions here encountered, it is desirable to know something about the behavior of the fundamental tissues involved toward the substance under investigation. What is the real effect of carbon dioxid on simple muscular and nervous structures and what are the modifications induced by its absence or accumulated presence? Henderson has insisted that the essential failing element in traumatic and toxemic shock is what he terms the venopressor mechanism.[4] This he assumes to consist in part of the tonus of the tissues and in part of osmotic processes. The tonus of the contractile tissues is regarded as largely dependent on their content of carbon dioxid. It is asserted to prevent stasis by compressing the capillaries; and when acapnia occurs, the blood stagnates in the venous reservoirs.

This hypothetic action of carbon dioxid on venous tone, i. e., on venous and arterial musculature, has been made the subject of investigation by Professor Hooker of the Physiological Laboratory in the Johns Hopkins University.[5] He has found that carbon dioxid does not

1. Henderson, Y.: Bull. Johns Hopkins Hosp., 1910, xxi, 1.
2. Henderson, Y.: Primary Heart Failure in Normal Subjects Under Ether, Surg., Gynec. and Obst., August, 1911, p. 161.
3. Gatch, W. D.: THE JOURNAL A. M. A., March 5, 1910, p. 775; Nov. 11, 1911, p. 1593. Teter, C. K.: Ibid., Nov. 23, 1912, p. 1850.
4. Henderson, Y.: Acapnia and Shock, Am. Jour. Physiol., 1911, xxvii, 152.
5. Hooker, D. R.: The Chemical Regulation of Vascular Tone, Am. Jour. Physiol., 1911, xxviii, 363; The Effect of Carbon Dioxid and of Oxygen on Muscular Tone in the Blood Vessels and Alimentary Canal, Ibid., 1912, xxxi, 47.

appear to be directly beneficial to the muscular tissue of the walls of the blood-vessels and alimentary tract, except in the case of intestinal muscle when arhythmic. In minimal effective amounts the gas always relaxes vascular muscle. If the muscle is exhibiting rhythmicity, the latter is abolished or depressed. Oxygen is essential to rhythmicity in vascular muscle, and also to its maintenance of tone. The kind of reaction produced by carbon dioxid and oxygen is the same for all percentages; the amount of reaction varies directly with the amount of the gas.

From the foregoing it would appear as if carbon dioxid actually produces vascular relaxation instead of the expected tonus. This isolated fact does not, however, settle the question of possible indirect benefits of the gas. It seems likely that carbon dioxid produces in the medullary centers an overcompensation of the unfavorable effects produced in the periphery. The sum total of this might easily be a typical rise in arterial pressure. Hooker has pertinently asked whether the administration of carbon dioxid in cases of surgical shock, as advised by Henderson, is an advantageous form of stimulation, since the peripheral effect weakens the central influence. He adds that if a stimulus is advisable in conditions of shock it ought, if possible, to be of direct as well as indirect benefit to vascular tone.

Additional experiments[6] indicate that carbon dioxid is detrimental to the efficiency of the heart when isolated from the body. It must be admitted, of course, that such evidence gives no conclusive information as to the effect, beneficial or otherwise, of the gas on the body as a whole; but as long as carbon dioxid must be regarded as detrimental to cardiovascular tissue in that it relaxes tone and abolishes contractile rhythm, the theories and practical consequences which have of late been associated with the physiologic rôle of this product of tissue metabolism must be regarded as still open for debate.

Current Comment

APPLIED IDEALS

Old in phrase, but distinctly modern in force is the keynote of the inaugural address of Governor Sulzer of New York: *Salus populi suprema lex.* His appeal was especially strong to employers to recognize the economic wisdom of keeping their employees as free as possible from infection, adequately remunerated, well housed and not overworked. Conditions, still too frequently found, in which the work of women and children is unnatural and beyond their strength, must produce a race of workers lacking in both stamina and resourcefulness. But, if a healthy individual means a healthy business, not less must that healthy individual mean a healthy government. Hence the natural conclusion, according to Governor Sulzer, is that ". . . any industry that robs the vitality and destroys the initiative of workers is detrimental to the best interests of the state and menaces the general welfare of the government." Governor Sulzer's remarks are timely. They also serve to recall the many instances in which factory, mining and other great business organizations have already applied to the conditions of their operatives such betterment ideals as those mentioned, and not only these but also many others whose fitness shows special study of particular conditions. A list of "features of factory administration designed for the benefit of operatives" in but one state includes, among many other items of welfare work, factory ventilation and sanitation, family supplies at cost, gymnasiums, hospitals and emergency and medical treatment, lavatories and lockers, lunch and dining-rooms and annual outings. This is, indeed, "the hopeful side of the labor problem." Such consideration results in mutual loyalty between employer and employed, in healthier and better satisfied workers, in work of both higher grade and greater value. An adequate summary of the situation is given by the report of one firm employing over 20,000 men and spending thousands of dollars on welfare features that "it pays." Truly the day of those who grind the face of the poor is passing.

THE NEWSPAPERS AND MEDICAL ITEMS

We commented recently[1] on the too seldom recognized responsibility of the newspaper in printing medical items. One particular instance cited consisted of the careless treatment by a portion of the lay press of a so-called consumption cure. Newspaper reports of a cancer cure and a cure for infantile paralysis, both emanating from Chicago, have been going the rounds of the newspapers. Neither has been reported regularly to the medical profession. Some papers publish these items without comment, while others maintain a conservative or skeptical attitude toward them. This skepticism, probably due to the failure of many hastily reported "cures" eventually to justify the enthusiastic reports concerning them, reflects unfavorably, but also unjustly, on the ethical members of the profession. Concerning the so-called cure for infantile paralysis mentioned above the Pittsburgh *Post* says: "The report comes from Chicago of the discovery of a remedy for infantile paralysis so simple that the parents of a victim can treat and cure the case themselves without the aid of a physician. Discoveries of so-called cures for various ills have been so frequent of recent years that the public has grown skeptical and will not be inclined to jump at conclusions as to the reliability of this latest announcement." The skepticism of the public and the newspaper in this instance is no doubt justified; but it is the lay press and not the medical profession that is responsible for the previous disappointments of the public. If in the past the newspapers had been less eager to print items regarding such alleged wonderful medical discoveries before ascertaining that these discoveries had a scientific foundation and the endorsement

6. Ketcham, C. S., King, J. T., Jr., and Hooker, D. R.: The Effect of Carbon Dioxid on the Isolated Heart, Am. Jour. Physiol., 1912, xxxi, 64.

1. Responsibility of the Newspaper, editorial, THE JOURNAL A. M. A., Dec. 14, 1912, p. 2159. Science and Newspaper Sensationalism, ibid., Jan. 18, 1913, p. 211.

of scientific men much harm to the public would have been avoided. Another instance of injury done by newspapers which may be attributed to pure carelessness is in the reporting of contagious or infectious diseases. The Joplin (Mo.) *Globe* prints an item purporting to be a "special" from Memphis to the *Globe* that in a town of 1,000 population in Arkansas, 500 people were afflicted with meningitis, and that an average of twenty deaths out of every thirty cases occurred. It is also stated that there had been over 1,000 deaths in eastern Arkansas. This shamelessly exaggerated report is still further garbled by the careless headline writer in the line: "Meningitis Kills Thousands." Such reports cause undue alarm and may be the source of much inconvenience or suffering. Still another instance of carelessness on the part of the newspapers is an article which has appeared in many newspapers with large headlines to the effect that "Infantile Paralysis is Not Contagious." A more or less accurate account is given of the work of Rosenau and others in demonstrating that infantile paralysis may be transmitted by the biting stable-fly. The vice in this report is that the investigators did not claim unequivocally that the disease may not be transmitted by other means, for which there is the authority of many good observers; the public will gain a wrong impression of this deplorable disease, and the resulting indifference may allow it to spread needlessly. The newspapers are to be commended for their efforts in helping to educate the public in preventive medicine, or in giving publicity to authentic medical news, but medical items should not be presented so heedlessly or so hastily as to do harm rather than good in this respect.

THE SPECIALIST

The hurriedly made specialist in medicine—"the egregious expert," to modify slightly a familiar and at present popular proverb—believes and acts on the principle that nothing succeeds like excess—excess of refinement in specialism. The *Medical Press and Circular*[1] asserts that a truer reading of this proverb would be "Nothing recedes like success." It is believed that the narrow specialist, exotically grown and narrowly confined, cannot last and even now is on the wane. Feeling that he is marching in the footsteps of natural advance when he decides to become a specialist, he believes that, like the cell, the more highly specialized the more advanced the organism. As he proceeds in experience his views become more and more narrow. He forgets that no group of cells acts independently. "The man who lives and moves and has his being only among experts of his own type is merely an example of frenzied isolation." The man who goes abroad for three months and thenceforth sets himself up in the temples of the experts and "confines his attention to bladders to the total exclusion of hearts, kidneys and other distant structures" is said to be "largely a bearer of other men's responsibility—or a scapegoat." But he is unnecessary. While it is true that "no man can study medicine in its entirety," and "surgeons, physicians, eye-men, gynecologists, and so forth, we must have," each is a part of a whole and no one should attempt to dominate the whole. The refinement of specialism leads to narrowed efficiency and thence to the vanishing-point of practical effectiveness. Too close concentration will lead to elimination. Let the narrow specialist know his limitations and keep to his place. As the *Press and Circular* says, "His opinions should be treated gravely as such and not as absolute, proved facts. He makes an excellent servant but a bad master."

1. Med. Press and Circ., Nov. 27, 1912, p. 562.

WHAT'S IN A NAME?

Any one who has followed the evolution of trade labels in American commerce cannot fail to be amused, not to say astounded, at the many fanciful ways in which suggestion is made to perform a part in the sale of secret concoctions and mysterious products. To a chemist accustomed by training and experience to associate soaps with fats from which they are prepared, the designation of a soap, for example, by reference to some raw material from which it can by no manner of manipulation be produced, represents an absurdity. The layman, on the other hand, is impressed in an indefinable way when he reads of Buttermilk Soap or Olive Tablets; and by an unanalyzed association of ideas he hastily assigns unique virtues to what is on its face a ridiculous contention. We supposed that after years of experience we were almost immune to the humor of the lying label. Two recent additions to the growing collection of the government's exposures in connection with the Food and Drugs Act will bring a smile even to the most stolid countenance. One of these is Liquid Extract of Smoke. The purchaser who hoped to find in this the promise of a remarkable concentrate useful wherever smoke has virtues was deluded into the purchase of crude pyroligneous acid—a mere wood distillate. The other disseminator of humor to the initiated was Cream of Hops. One might feel doubt whether this was a face lotion or a canned soup. The fact is that it was sold and guaranteed by a temperance beverage company as a non-intoxicating beer. The picture of a grapevine and grapes on the bottles helped to add a grateful confusion in regard to the nature of the contents, which concealed 3.5 per cent. of alcohol.

SENATE DECLINES TO CONSIDER OWEN BILL

The United States Senate on Monday, by a tie vote, refused to take up the consideration of the Owen bill. This does not finally dispose of the bill as it still retains its place on the Senate calendar and can be called up at any time and considered by a majority vote of those Senators present. As it is realized by those friendly to public health legislation that there is little chance of the bill passing the House at the present session, the tie vote on the question of its consideration can justly be regarded with satisfaction by the friends of a broader national health organization. It is generally understood that Senator Owen will introduce a bill at the next session of Congress, if the present bill does not pass, but it is highly probable that such a bill will be redrafted and considerably modified. If this is the case it is to be hoped that Senator Owen will go back to the original plan and draft a bill calling for a Depart-

ment of Health, with a secretary in the cabinet. The growing realization of the importance of this subject and the increasing support for it show the educational value of the agitation which has extended over the last three years. The opposition has reached its high-water mark, and the false statements which were so widely circulated regarding the object of the measure and the purposes of its advocates have reacted. The Owen bills have made people think. If they will only think hard enough and long enough to realize the great importance of health conservation, the eventual, inevitable result will be the establishment of a national Department of Health. Nothing short of this should be the aim of those who appreciate the present public health conditions and the needs of the future.

PHYSICIANS IN THE INDIAN SERVICE

The recent organization of the "Medical Association of the United States Indian Service" as noted in our news columns this week, calls attention to this neglected branch of governmental medical service. It also calls attention to the need for further coordination or the reorganization under one head of the medical service of the various departments of the government. The object of these men as asserted in the organization, "to improve the health conditions among their respective charges, to advance the cause of preventive medicine by an interchange of helpful suggestions, to produce a more helpful intercourse among the physicians in the field and to take advantage of the benefits accruing from concerted efforts of an earnest body of men actuated by a common impulse," should be encouraged. At present this small body of men, although engaged in highly important work under the most adverse conditions, receives little consideration from the authorities. Most of them live in remote districts, among uncomfortable surroundings, their duties being among people of insanitary habits, often afflicted with dangerous contagious diseases. They work hard and it is a wonder that men of any degree of efficiency as physicians can be induced to remain in the service under the conditions accompanying it at such ridiculously inadequate salaries. It is understood that Congress is to be asked for some adequate appropriation and for increase in salaries for this service, and it is highly important that something be done. It is only by adequate support of the Indian Medical Service and sufficient salaries paid to physicians to secure good men that the conditions among the Indians themselves may be improved and the spread of diseases among the white population prevented. Efforts of the organized physicians in the Indian Service to better conditions are deserving of support.

The Value of Experimental Physiology to the Community.—The science which they (the physiologists) teach is the science of life, from which is eliminated all sordid and selfish considerations. A scientist in his laboratory discovers a great truth, which saves the lives of thousands of human beings. The doctor engaged in everyday practice makes use of that knowledge to preserve, perhaps, the life of your child. Give him any praise you think fit. But don't entirely forget the physiologist who taught him the art.—F. M. Sandwith, *Clin. Jour.*

Medical News

CALIFORNIA

New Officers.—San Francisco County Medical Society at San Francisco: president, Dr. H. B. A. Kugeler; secretary-treasurer, Dr. Rene Bine, reelected for the fourth term, both of San Francisco.——Los Angeles County Medical Association: president, Dr. William M. Lewis; secretary-treasurer, Dr. George H. Kress (reelected), both of Los Angeles.——Northern District Medical Association at Chico: president, Dr. D. H. Moulton, Chico; secretary, Dr. F. F. Gundrum, Sacramento. Lake Tahoe was selected as the next meeting place.——Glenn County Medical Association was organized at Willow with Dr. J. A. Randolph, president, and Dr. F. M. Lawson, secretary, both of Willow.

Extensive Gifts to University of California.—With gifts of $400,000 assured to build and equip new departments of the University Hospital in San Francisco, new measures have been planned by the president and Dr. Herbert C. Moffett, the new dean of the medical college. It is proposed to put the last two years of the medical course on a strictly academic basis, that is, to have the instruction given by men who devote their time solely to teaching and scientific research, to the exclusion of private practice. The university expects also to have courses of instruction for graduate physicians during the summer session. As a preliminary to this course, there will be held a special series of clinics, conferences and addresses during commencement week in May.

GEORGIA

New Medical Building Dedicated.—The Medical Department of the University of Georgia, located at Augusta, dedicated its new medical building January 29. Special exercises were held during which the LL.D. degree was conferred on Dr. William M. Polk, dean of Cornell University Medical College, and Dr. J. A. Witherspoon, president-elect of the American Medical Association. Governor Joseph M. Brown, Mayor L. C. Hayne of Augusta and a large number of other distinguished guests were present.

ILLINOIS

Personal.—Dr. T. D. Doan, Scottville, is taking treatment for tuberculosis in the Modern Woodmen of America Sanatorium, Woodmen, Colo.——Dr. and Mrs. Frank W. Hanford, Rockford, are spending the winter in Southern California.

University of Illinois Again Gets Medical School.—The College of Physicians and Surgeons of Chicago again passes under the control of the University of Illinois. This time it is a gift to the state institution partly by the stockholders and partly by the alumni who purchased the stock not donated. The medical school has for several years held a contractual relationship with the University of Illinois, but that relationship was cancelled last spring. By the present transfer of all the stock, however, the medical school becomes an organic department of the University of Illinois.

The Governor and the Board of Health.—In his final message Governor Deneen devotes considerable space to the State Board of Health giving its history, general aims and purposes, with especial reference to its laboratory work. He recommends a material increase in the appropriation for the State Board of Health for sanitary work; repeats his recommendations that a law be enacted for a better method of registration of mortuary statistics; calls attention to the need of revision of the section of the medical practice act which enables the board to revoke certificates of physicians for unprofessional and dishonorable conduct; repeats his former recommendation that the appropriation for free distribution of diphtheria antitoxin be continued, and urges the creation of a state sanatorium for tuberculosis.

Chicago

Buy Sanatorium Site.—The Crane Company has purchased Buffalo Rock on the Illinois River, near Ottawa, and will build and equip a sanatorium for the employees of the concern in need of recuperation.

New Officers.—Chicago Ophthalmological Society, twenty-first annual meeting and banquet, January 20; president, Dr. Willis O. Nance; secretary-treasurer, Dr. Wesley H. Peck.——Bohemian Medical Association incorporated at Chicago by Drs. James F. Chvatal, Frank J. Fara and Frank J. Novak.

Medical Reserve Corps Lecture.—The Medical Reserve Corps, United States Army, Illinois Division, will have a joint meeting with the Chicago Medicolegal Society at the Morris Insti-

tute for Medical Research, Twenty-Ninth Street and Groveland Avenue, on Monday evening, February 10. Col. H. E. Carbaugh, Judge Advocate, United States Army, will lecture on "The Customs and Usages of War from the Legal and Red Cross Standpoint."

Personal.—Dr. Frederick A. Speik, formerly assistant to Dr. B. W. Sippy, has opened an office in the suite of Dr. Norman Bridge in the Auditorium Building, Los Angeles, Cal.——Dr. Charles A. Ullerick, Austin, was cut and bruised in a collision between his automobile and a wagon, January 28.——Dr. M. M. Matthies is now associated as serologist with the National Pathological Laboratory.——Dr. S. C. Stanton has been appointed colonel, surgeon-general, M.C., Ill. N. G., succeeding Brigadier-General Charles Adams, retired at his own request.

INDIANA

New Officers.—Seventh Councillor District Medical Association at Martinsville: president, Dr. H. C. Robinson, Martinsville; secretary Dr. David W. Layman, Indianapolis.

State Board Election.—At the annual election of the State Board of Medical Examiners, Dr. W. A. Spurgeon, Muncie, was reelected president and Dr. W. T. Gott, Crawfordsville, secretary.

Memorial Services.—Hamilton County Medical Society at its December meeting in Noblesville paid memorial tribute to two deceased members, Drs. Henry Moore, Indianapolis, and J. A. Axline, Noblesville.

School to Operate Dispensary.—The Board of Health of Indianapolis, January 20, approved a contract to be entered into with the trustees of the Indiana University School of Medicine for the operation of the city dispensary in 1913 for which the university will receive $10,625.

Personal.—Dr. Robert O. McAlexander, Indianapolis, won the suit for malpractice brought against him by Henry E. Brown in which damages of $10,000 were asked.——Dr. I. N. Cochran, Delphi, while attempting to turn on an electric light, fell over the banister to the floor below, suffering severe internal injuries.——Drs. Dwight Mackey, Hobart and John Kent, Mulberry, recently fractured their arms while cranking their automobiles.——Dr. Olive Nelson, Huntington, is reported to be critically ill in the Piedmont Hospital, Atlanta, Ga.——Dr. Mary H. Fulton, a medical missionary to Canton, China, is visiting her old home in Indianapolis.——Dr. C. S. Stewart, Auburn, is reported to be ill in the Garrett Hospital.——Dr. E. M. Conrad, Anderson, has been appointed acting chief surgeon of the Indiana Union Traction Lines and local surgeon for the Pennsylvania System.——Dr. and Mrs. J. B. Fattic, Anderson, sailed for Europe, January 18.——Dr. J. H. Ford, Indianapolis, has been appointed chief surgeon of the Cincinnati and Northern Railroad.

MASSACHUSETTS

Dental Clinics.—The city of Newton has provided for a dental clinic for school children too poor to pay the regular dentist's fees. Equipment costing $400 has been installed in two school rooms and here Monday and Thursday afternoons and Saturdays when there is no school, twenty dentists have promised to do dental work free.

Personal.—Dr. Walter C. Bailey, Boston, has been nominated a trustee of the hospitals for consumptives, vice Dr. Arthur T. Cabot, deceased.——Dr. Albert Ehrenfried has been appointed assistant visiting surgeon to the Boston City Hospital.——Dr. Albert C. England, Pittsfield, has been appointed agent of the Board of Health.——Dr. Philip Castleman has been appointed assistant in the bacteriological laboratory of the Boston Board of Health.——Dr. Thomas B. Smith, Lowell, has been appointed associate medical examiner for Middlesex County, vice Dr. R. E. Bell, deceased.——Dr. James H. Knowles, Gloucester, is spending the winter at the Colonial Hotel, Nassau, Bahamas, where he expects to remain until the end of April.

MINNESOTA

Medical Board Appointments.—Drs. Charles Bolsta, Ortonville, J. W. Andrews, Mankato, and F. B. Hicks, Grand Marias, have been reappointed members of the State Board of Medical Examiners.——At the annual meeting of the State Board of Health held in St. Paul, January 14, Dr. W. A. Jones, Minneapolis was reelected president and Dr. B. J. Merrill, Stillwater, vice-president.

Reorganization of Medical Faculty.—The reorganization of the University of Minnesota School of Medicine, recommended by President Vincent, is under way. The faculty of the medical college met January 15, and presented a collective resignation. The reorganization plan calls for a reduction of professorships and instructorships by about 50 per cent., while the half-time lecturers engaged in practice in St. Paul and Minneapolis are also to be dropped from the faculty roll. The resignation carries with it no discredit to the instructors, but has been recommended in order to increase the efficiency of the school and perfect the machinery of instruction.

Personal.—Dr. D. C. Jones, St. Paul, has been elected president of the Coroners Association of Minnesota.——Dr. W. J. Marcley, Minneapolis, has been elected president, Dr. W. D. Beadie, St. Paul, a vice-president, and Dr. H. Longstreet Taylor, St. Paul, secretary-treasurer of the State Antituberculosis League.——Dr. C. E. Dutton has been appointed health commissioner of Minneapolis, vice P. M. Hall.——Dr. C. D. Whipple, Minneapolis, sailed for Europe January 8.——Dr. Arthur B. Ancker, St. Paul, has been reelected physician of St. Paul and Ramsey County. He has served in this capacity for nearly thirty years.——Dr. I. J. Murphy, assistant health commissioner of Duluth, has resigned.——Dr. I. W. Timmons, Winona, recently suffered a cerebral hemorrhage.

MISSOURI

State Board Election.—At the annual meeting of the State Board of Health, held in Jefferson City, January 3, Dr. G. B. Schulz, Cape Girardeau, was elected president; Dr. L. E. Bunte, St. Louis, vice-president and Dr. Frank B. Hiller, Jefferson City, secretary (reelected).

Medical School Sued.—Drs. J. W. Ousley and G. Wilse Robinson, specialists in nervous and mental diseases, have brought suit in the Circuit Court of Kansas City against Drs. E. J. Short, Flavel B. Tiffany and the University Medical College, to recover $1,000 which the complainants alleged they invested in the stock of the college with the understanding that they were to be placed on the faculty of the institution as instructors.

Personal.—Dr. A. W. Teel, Kahoka, has been elected a member of the state legislature.——Dr. Bondurant Hughes, Keytesville, has been appointed superintendent of the State Sanatorium for the Treatment of Tuberculosis, Mount Vernon, vice Dr. John Stewart, Warrenton.——Dr. S. A. Newman, Cassville, has been appointed surgeon to the State Penitentiary.——Drs. T. H. Gronoway and L. O. Mason, Bevier, were badly bruised in a runaway accident, January 25.——Dr. G. O. Cuppaidge, Moberly, has been appointed colonel on the staff of the Governor.——Dr. J. W. Conrad, Sumner, suffered the loss of his right hand, January 19, in the accidental discharge of an automatic shotgun.——Dr. Dora Greene Wilson, Kansas City, was seriously injured in an automobile collision, recently.——Dr. C. L. Woolsey, Braymer, has been appointed assistant physician of State Hospital No. 2, St. Joseph.——Dr. M. O. Biggs, Bowling Green, has been appointed superintendent of State Hospital No. 1, Fulton.

St. Louis

Noted Chemist Dies.—Henry Dettmer, well known as an analytical chemist and teacher, died at his home, December 21, following a nervous breakdown.

Hospital Saturday and Sunday.—The executive board of the Hospital Saturday and Sunday Association has authorized the distribution of $45,000 to the various hospitals of the city.

Diphtheria Closes School.—The St. Louis Industrial School was ordered closed January 13 on account of the prevalence of diphtheria. Thirty-eight pupils were transferred to the Isolation Hospital and positive cultures were obtained from one-hundred and fifteen of the children.

St. Louis University to Build.—A permit for a three-story addition to its medical college at Grand Avenue and Caroline Street was taken out December 16, by St. Louis University. The new building will cost about $10,000 and will contain the offices of the faculty, the library, and a recreation and assembly room for students.

Personal.—Dr. Russell D. Carmen was given a testimonial dinner prior to his removal to Rochester, Minn.——Dr. F. B. Hall has been appointed roentgenologist of the Jewish Hospital.——Dr. Emma Phelan has been appointed registrar of vital statistics of University City.——Dr. Algernon S. Barnes is reported to be seriously ill at his home.——Dr. P. M. Carrington, U. S. P. H. Service, has been elected medical director of the St. Louis Society for the Relief and Prevention of Tuberculosis, vice Dr. George C. Crandall, deceased.——Dr. John Sutter has been appointed health commissioner of University City.

NEW YORK

New Laboratory for Students.—The new physiologic laboratory in connection with the Long Island College Hospital was opened January 31. It is considered one of the most complete in the state and occupies a room in the Polhemus Memorial Building.

Fighting Small-Pox.—The State Department of Health is taking steps toward the prevention of a general epidemic of small-pox. The disease is reported as being epidemic in widely separated localities in the state. Among the places reporting cases are Whitehall, Mechanicsville, Palatine Bridge, White Plains, Canojoharie, Tonawanda, Niagara Falls and Corning. The disease is usually of a very mild type.

New York City

Insurance Company Gives Health Lectures.—The Mutual Life Insurance Company is giving a series of lectures by eminent men. The lecture of January 29 was delivered by Surgeon-General Rupert Blue, U. S. P. H. Service, who spoke on the bubonic plague and other contagious diseases.

Harvey Society Lectures.—The seventh of the present course of Harvey Society lectures will be given at the New York Academy of Medicine on the evening of February 15 by Dr. Theodore C. Janeway of Columbia University on "Nephritic Hypertension: Clinical and Experimental Studies." The postponed lecture by Major J. J. Russell, U. S. A., on "The Prevention of Typhoid Fever," will be given February 8.

Personal.—Dr. David Louis Rauch disappeared from his home January 10 and has not yet been found, and no cause can be found for his mysterious disappearance.——Dr. Theodore C. Janeway, Dr. Linsy R. Williams and Dr. Richard Kovacs represented the New York physicians at the American Society for Physicians' Study Travels organized in Philadelphia January 25.——Dr. Frederick B. LaFarge, one of the staff of the Rockefeller Institute, was injured in an explosion in the laboratory, January 30, but was not seriously hurt.

Laboratory Incorporated.—The Harriman Research Laboratory, which was established in 1910 and is maintained by Mrs. E. H. Harriman for the study of chemical problems connected with disease and owns and operates a building on the grounds of Roosevelt Hospital, has been incorporated. The work up to date has consisted of investigation of ferment acid on the human body from the standpoint of the comprehension and cure of various diseases. It is believed that incorporation will facilitate the work in this comparatively new field of medical science.

Health Department Issues New Publication.—The weekly report of the Department of Health is now appearing in enlarged form as the *Weekly Bulletin*. It is the intention to make this the official communication between the Department of Health and the physicians, social workers, journalists, and other groups of citizens of New York who are especially interested in the work of the department. The *Monthly Bulletin* will be continued as heretofore and will include a special article relating to some one of the divisions or offices or to some special topic.

A Mosquito Problem.—The residents of Westchester County recently made preparations to exterminate the mosquitoes in the swamps lying to the south of Pelham. It became evident that unless New York City cooperated in this campaign little could be achieved. Health Commissioner Lederle asked for an appropriation to assist in the work of extermination, but his request was refused by the Board of Estimate. He is now planning to hold a conference on the subject of mosquito prevention and an endeavor will be made to interest land owners in some plan for a general clean up.

Faculty and Directors of Medical School Dine.—The directors and faculty of the New York Post-Graduate School and Hospital held their annual dinner January 30. Dr. James F. McKernon was toastmaster and W. Bourke Cockran made the principal address in which he defended the surgeon's fees. The sea law for salvage should govern charges. When a mariner comes across a wreck and saves it he is entitled to a fee, not according to the trouble the wreck has given him, but according to the value of the goods salvaged. William R. Riddell, Chief Justice of the King's Court Division of the High Court of Ontario, was the guest of the evening.

What Antitoxin Has Done in New York.—In connection with the recent announcement that the free administration of diphtheria antitoxin by the Department of Health will be discontinued after February 1, it is stated that this practice was begun in 1895 and had as its object not only the cure and prevention of the disease but the education of the medical profession and the general public. These ends are now said to have been accomplished. The death-rate from diphtheria in Manhattan and the Bronx has fallen from 15.9 per 10,000 of the population in 1894 to 2.2 in 1912. In 1894, 29 out of every 100 cases reported died, while in 1912 less than 9 cases out of every 100 reported died. Since 1895 almost 40,000 persons have been treated with antitoxin by the Health Department and less than 6 per cent. died. The records show that antitoxin is now used in practically every case of diphtheria.

NORTH CAROLINA

Change of Date of Meeting.—The date of meeting of the Board of Medical Examiners has been changed from January 18 to January 3, on account of the change of the date of meeting of the Medical Society of the State of North Carolina.

Honor to Dr. Lewis.—At a recent meeting of the Wake County Medical Society resolutions were adopted in appreciation of the signal service rendered by Dr. Richard H. Lewis, Raleigh, in the securing of health legislation and the enforcement of laws.

Hospital and Sanatorium Notes.—Arrangements are being made for the opening and maintenance by the city of Wilson, of a free ward as an addition to the plant of the Wilson Sanatorium. Special provisions are to be made by the city for colored people.——Dr. Robert S. Carrol has begun work on the $30,000 addition to the Highland Sanatorium, Asheville, which is to be completed this year.

Memorial Tablet Placed.—In the rotunda of the Rex Hospital, Raleigh, a tablet was recently placed in memory of Dr. Peter Evans Hines, who "as physician and trustee was one of the small band of Christian workers, who in 1878 established Rex Hospital."——The daughters of the late Richard H. Battle have equipped a room in the hospital as a memorial to their father who was for many years a trustee.

Personal.—Dr. M. Eugene Street, Glendon, has been elected superintendent of the North Carolina Sanatorium for the Treatment of Tuberculosis at Montrose.——Dr. A. D. Parrott, Kingston, has been elected superintendent of health of Lenoir County.——Dr. Samuel Westray Battle, Asheville, has been reappointed surgeon-general, and Dr. B. R. Hunter, Huntersville, assistant surgeon-general of the National Guard of North Carolina.——Dr. R. W. Crawford, Rocky Mount, has been appointed chief surgeon of the relief department of the Atlantic Coast Line System, vice Dr. G. G. Thomas, Wilmington, who, it is reported, will be made medical director of the road.——Dr. E. A. Hennessee, Glen Alpine, is reported to be in critical condition at the Long Sanatorium, Statesville, from wounds received in a feud fight.

OHIO

State Board Appointments.—Dr. T. A. McCann, Dayton, has been reelected vice-president of the Ohio State Medical Board and Dr. Frank Warner, Columbus, reappointed a member of the State Board of Health.

State Medical Board Overruled and Upheld.—The governor and the attorney-general have overruled the state board and ordered the restoration of the revoked certificate of Dr. Levy W. Hunt, Toledo, charged with unprofessional conduct. They sustained the board's revocation of the certificate of Dr. M. F. Lambright, Cincinnati, charged with lending his professional services in aid of a fraud.

Endowment for Medical College.—Dr. John C. Oliver, chairman of the endowment committee of the Ohio-Miami Medical College of the University of Cincinnati, has announced a donation of $125,000 from a donor whose name is being withheld. An effort is being made to raise an endowment fund of $1,000,000. The income from the donation announced is to be used for the pathological department.

Medical Members of Legislature.—The medical members of the Ohio Legislature are as follows: Senators—Drs. C. T. Gallagher, Mount Sterling; I. C. Kiser, Fletcher; R. H. Finefrock, Prospect, and Lewis P. Cook; representatives, U. S. King, R. B. Cameron, Jewell; J. V. Winans, Madison; M. J. Jenkins, Plain City; G. J. C. Wintermute, Celina; Van S. Deaton, Alcony, and W. M. Dickson, Flints Mill.

Personal.—Dr. J. M. Anderson, Greenville, is reported to be ill with appendicitis.——Dr. W. F. Scatterday, Columbus, who has been ill with pneumonia and rheumatism, has recovered and resumed practice.——Dr. Silas Schiller, Youngstown, suffered a slight cerebral hemorrhage, January 9, and is reported to be convalescent.——Dr. Webster Smith has been elected chief of staff of the Miami Valley Hospital, Dayton.——Dr. G.

A. Bachmayer, Lima, who has been ill with septicemia in the Lima Hospital, is reported to be convalescent.——Dr. L. D. Blanchard has been elected president of the Canton Civil Service Commission.——Dr. J. H. McCassy, Dayton, was operated on for appendicitis and stricture of the colon at Good Samaritan Hospital, January 10, and is reported to be doing well.——Dr. Herbert Ferry, Poland, is reported to be ill with pneumonia.

Cincinnati

Women Organize Academy.—The women medical practitioners of Cincinnati met January 25 at the office of Dr. Nora Crotty and organized the Academy of Medicine for Women.

Hospital News.—Funds have been assured for the completion of the new Good Samaritan Hospital. When the new Municipal Hospital is finished, the aggregate clinical resources of the University of Cincinnati will amount to 1,700 beds.

Personal.—Dr. William Ravine has resigned as chief medical school examiner.——Dr. Charles A. L. Reed was installed as president of the Cincinnati Academy of Medicine, January 13. ——Dr. P. A. Keck, who has been seriously ill with bronchitis, is reported to be convalescent.——Dr. Harry T. Summersgill has returned from Europe.

Prevention of Blindness.—The Cincinnati Association for the Welfare of the Blind employs a visiting nurse to investigate each case reported, which she refers to the nearest hospital or clinic, thus securing treatment for a class of people who, but for timely aid, would become dependent on the public. There were 141 cases handled, all saved, with 41 still under treatment, the nurse having made 2,449 house visits. The total expenditure for this work was $900, which represents just one-fifth of the cost of one blind child to the state, and one-tenth the cost of the pension for a blind person who lives to be fifty.

PENNSYLVANIA

State Society Meeting.—The Medical Society of the State of Pennsylvania will hold its annual meeting in Philadelphia, September 22-25.

Contagious Disease Hospital Ready.—The new contagious disease hospital for the city of Allentown and county of Lehigh has been completed at a cost of nearly $8,000.

Personal.—Dr. E. Hunter Perry, New Castle, has become rector of Trinity Church, Punxsutawney.——Dr. R. W. Montellius, Mount Carmel, is reported to be ill with pneumonia.—— Dr. W. A. Nason, Roaring Spring, has been elected chief surgeon and Dr. John D. Hogue, secretary of the staff of Mercy Hospital, Altoona.——Dr. W. H. Morrow and wife, Swissvale, were seriously burned by an explosion of gasoline in their garage.——Dr. J. W. Ellenberger, Harrisburg, has returned from Europe.

Inspect Rittersville Asylum.—The Appropriations Committee of the House of Representatives visited the new State Hospital for the Insane at Rittersville, January 31, to find out why the trustees asked for $75,000 as a deficiency appropriation. The hospital was opened for patients last October and now has 800 inmates, and no appropriation has been provided for maintenance. More than $1,000,000 will be asked of the present legislature to complete the asylum and grounds and maintain it for the next two years.

Gives Hospital to Danville.—Mrs. Abigail A. Geisinger, Danville, is giving to that city a hospital which will represent an investment of about $600,000, $400,000 of which is to be devoted to erection and equipment and the remainder to endowment. The hospital will be located on a hill overlooking the town and river, will be constructed of light colored brick, steel and concrete, will be fireproof and three stories in height, excepting the central administration building, which will be four stories. Three buildings are to be constructed on the pavilion plan, each being connected with the administration building by passageways.

Philadelphia

Measles Still Epidemic.—Although reports received by the Bureau of Health show that in the week ended February 1, there was a decrease in the number of new cases of measles (458 new cases being reported, as compared with 503 for the previous week), yet since October 1, 2,748 cases of measles have been reported, and Dr. Neff has issued a bulletin pointing out that measles is a preventable disease and warning the public to protect young children from the disease.

Tuberculosis Pavilion.—Plans for a large pavilion for the treatment of tuberculosis and also a dormitory and dining-room extensions to the Home for Feeble-Minded on the city's tract at Byberry, have been made by Philip H. Johnson, and the contracts have been awarded to John W. Emery. The tuberculosis pavilion will consist of a main building, 30 by 80 feet, with two wings, 82 by 44 feet, and will cost $29,000. The plans for the Home for Feeble-Minded include an addition 57 by 30 feet, to be used as a dormitory, and also two wings, 21 by 119 feet, for dining-room.

Making Old Houses Sanitary.—During the year, the Octavia Hill Association has been making improvements in housing conditions in various parts of the city. In East Rittenhouse Street, Germantown, a group of three old houses were demolished, others renovated and made sanitary and two new buildings containing apartments for fourteen families erected. The North Front Street group contains accommodations for nineteen families, and the repairs consisted of cutting in windows. The management of a group of houses on Fitzwater Street has also been undertaken by the association for the Henry Phipps Institute. The group, consisting of five houses, will be rented by the institute to families of their tuberculosis patients at $8 per month, the families to receive care and oversight of the visiting nurses of the institute.

TEXAS

Officials of County Society.—In THE JOURNAL, January 25, a mistake was made in noting the newly-elected officers of the Harris County Medical Society. The president is Dr. S. M. Lister and the secretary, Dr. E. L. Goar, both of Houston.

Improvements for State Sanatorium.—Dr. Bascom Lynn, in charge of the State Tuberculosis Sanatorium, Carlsbad, has asked for an appropriation of $34,786 for the maintenance of the institution until September, $3,250.70 to pay the back indebtedness of the institution and $2,328 for the construction of a dam for irrigation purposes.

Personal.—Dr. George R. Tabor, Dallas, formerly state health officer of Texas, has been appointed acting assistant surgeon of the U. S. P. H. Service.——Fires have burned the offices of Drs. J. H. Lander and C. C. Bowes, Greenville, the residences of Drs. L. Kusch, Gay Hill, W. F. Whitaker, McKinney and O. I. Halbert, Waco, and the house and office of Dr. E. H. Cowan, Crowell.——The office of Dr. G. S. Field, Gainesville, was damaged to the extent of $2,000 by fire.

GENERAL

Personal.—Dr. J. A. Nydegger, U. S. P. H. Service, has been appointed lecturer of tropical medicine in the University of Maryland, and entered on his duties January 1.

Pediatrists Meet.—At the annual meeting of the Northeast Pediatric Society held in Boston, Dr. James S. Stone, Boston, was elected president; Dr. F. P. Webster, Portland, Me., vice-president, and Dr. Fritz Talbot, Boston, secretary-treasurer.

Honor General Torney.—In celebration of the reappointment of Brigadier-General George H. Torney as surgeon-general of the Army, officers of the Medical Corps on duty in and around Washington, gave a banquet at the Army and Navy Club, January 14, over which Colonel Louis A. La Garde presided as toastmaster.

The De Roaldes Prize.—A gold medal is offered by the American Laryngological Association for the best essay pertaining to laryngology or rhinology, preference being given to essays offering new suggestions of practical value arising from original work. The competition is open to practitioners of the United States and Canada in regular standing who are not members of the American Laryngological Association. Essays must be typewritten in English and must be in the hands of the secretary, Dr. Harmon Smith, 44 West Forty-Ninth Street, New York City, before May 1.

Medical Men Form Travel Society.—January 25 the American Society for Physicians' Study Travels, with national headquarters in Philadelphia and proposed branches throughout the United States, was formally organized at a meeting of prominent medical men at Philadelphia. Dr. James M. Anders was elected president and Dr. Albert Bernheim was chosen as secretary. The society proposes to send travel parties to foreign countries to report on the methods of leading medical men and scientists in Europe and South America. All physicians and scientists qualified to become affiliated with the American Medical Association will be eligible for membership, and also associate and honorary members will be elected among the prominent medical and non-medical men of this and foreign countries.

Bell System Creates Health Department.—The American Telephone and Telegraph Company, the Western Union Tele-

graph Company, and the Western Electric Company have made public a comprehensive plan for the payment of sick benefits and life insurance for their 175,000 employees. It is said that $10,000,000 is available for this purpose. In connection with this pension plan there is to be gradually established a system of medical supervision and preventive sanitation designed to preserve the health of employees. The preventive measures will not only include early detection of disease among employees, but also a supervision of sanitary conditions in offices and workshops and the instruction of employees in hygiene. The plan does not necessarily propose to furnish medical attendance to employees, but it will aid them in securing prompt and efficient treatment. Arrangements will be made with hospitals throughout the country for the prompt reception of those who seek this kind of treatment. It is believed by the companies that this plan will be an economical advantage to both parties. Dr. Alvah H. Doty, formerly health officer of the port of New York, has been appointed director of this department.

Organization of Physicians in the Indian Service.—At a meeting of the Sioux Conference held at Flandreau, S. Dak., in November, the "Medical Society of the Sioux Indian Service" was organized. At this meeting it was also proposed that steps be taken to organize the physicians in the United States Indian Service into a society to be called the "Medical Association of the United States Indian Service." This association has now been formed, with the following officers: president, Dr. John N. Alley, Fort Lanwai, Idaho; vice-presidents, Drs. John E. Dougherty, Lower Brule, S. Dak.; Ferdinand Shoemaker, Washington, D. C.; W. H. Harrison, Denver; Robert L. Russell, Washington, D. C.; Jacob Breid, Phoenix, Ariz. (Indian School); secretary and treasurer, Dr. Cornelius W. Lane, Miles, Wash. The objects of the organization are the usual ones of any medical society, improvement along the lines of their work, and in addition the improvement of the Indian medical service in general. It is also one of the aims of the new organization to endeavor to secure adequate salaries for the physicians connected with it. At present these salaries range from $480 to $1,600 per annum. Physicians receiving more than $720 per year are under the civil-service regulations, and instances are reported of men remaining in the service as long as twenty years who have only recently been advanced to a salary of $1,200 per annum; very few receive the higher sums. Among the Indians on the reservations sanitary conditions are not good. Trachoma, tuberculosis and syphilis are very prevalent and, owing to lack of hospitals, facilities and men for properly taking care of them, these diseases are spreading, and already have become in some instances a menace to the surrounding white population. It is hoped by the concerted action of the physicians in the service who are on the ground and understand the needs of the service through their association to enlist the greater interest of Congress in the physical condition of the Indians on the reservations with the result of securing better appropriations, etc.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Jan. 25, 1913.

The National Insurance Act: The British Medical Association Releases Physicians from the Pledge

The defeat of the resistance of the British Medical Association to the national insurance act has already been reported (THE JOURNAL, Jan. 25, 1913, p. 298). The object of the meeting of the representative body called to consider the desirability of releasing physicians from the pledge to work the act only on terms acceptable to the association might be described as somewhat belated, as 15,000 of the 27,000 who had taken the pledge had refused to be bound by it for one reason or another, given in previous letters. The proceedings were of an anxious character and lasted two days. As on former occasions, there was a struggle between two parties—those who thought the pledge should be maintained and those who thought it should be abrogated. The following motion was first discussed: "That while expressing the deepest sympathy with and declining in any way to blame those members of the profession who, compelled by economic pressure and the defection of their fellows have against their will gone on the panels, the representative meeting expresses their opinion that, until agreements to treat insured persons under the act are satisfactory to the medical profession and in accordance with the declared policy of the association, the pledge must be considered still binding." A long and animated discussion followed in which the danger of alienating the men who had remained loyal to the pledge was pointed out on the one side and the danger of driving from the association the men who had—often by force of circumstances—been compelled to break the pledge, was pointed out on the other. An attempt was made to find some middle course which would be equally acceptable to both parties, but without effect. In the end by a majority of 115 votes to 35 it was decided to release the physicians who had signed the pledge.

PROLONGATION OF THE RESISTANCE IN LONDON

The abrogation of the pledge removes the last vestige of difficulty which the government may have in forming adequate panels to work the act in the country generally, but in some districts of London the panels are still inadequate and resistance to the act is being maintained by "the London Medical Committee"—a body of physicians which, while independent of the British Medical Association, is endeavoring to carry out a similar policy. The London panel contains only about 1,000 physicians—a number which is inadequate. There are about 5,000 physicians in London who might serve on the panels if the terms were satisfactory. An agitation the keynote of which is "Insist on having your own doctor" is going on. The advantage to the insured persons of being able to be attended by their own physicians, whether on the panel or not, is pointed out, and they are supplied with blanks to forward to the insurance committee asking to be allowed to make their own arrangements for medical attendance. While the physicians receive a sympathetic hearing, and motions are carried in favor of this course, the agitation does not appear to have much prospect of success. The insurance committee has issued a statement saying that it will consider each application of the insured person to make his own arrangements on its merits, but in deciding will be influenced by the general effect which such applications may have on the panels. This is a plain intimation that it will not countenance the attempt of the physicians opposed to the act to use the clause which gives the insurance committee power to allow contracting out for medical attendance to be made the basis of a system of medical attendance designed to supersede that of the act. The British Medical Association tried to bring forward such a scheme without success, and the London Medical Committee is trying to introduce a somewhat similar one.

On the other side the National Insurance Practitioners' Association—a body of physicians formed for the purpose of working the act (described in a previous letter)—has issued a long manifesto emphasizing the necessity for organization and pointing out that "in many cases the arrangements of the act are experimental and in all cases officially provisional." They offer the use of the organization to the physicians on the panels, acting individually or collectively, in efforts they may desire to make in order to secure such rights and privileges for the medical service as can be granted by the insurance commissioners' committees. Suggestions for simplifying the records required from physicians are now being considered. Complaints have already been made that the clerical work is proving onerous. In ordering medicine for an insured person a physician has to write three prescriptions—one in a book supplied for the purpose and two for the pharmacist, who retains one and forwards the other to the committee. The adoption of a list of stock mixtures and preparations in constant use, such as can be found in every hospital pharmacopeia or the codex, is suggested as a means of lightening the labor of prescribing and the cost of dispensing.

An International Conference on Postgraduate Teaching

During the forthcoming international medical congress to be held in London next August, a conference on postgraduate teaching will be held in connection with the meeting of the international committee. Under government auspices a British committee, composed of the British delegates to the international committee and of representatives of postgraduate medical schools, has been formed with Sir William Osler as chairman to make the necessary arrangements. The following program has been drawn up by the international committee, of which Professor von Waldeyer is president and Professor Kutner, Berlin, secretary: Reports: (1) the curriculum of medical education in the United Kingdom; (2) the present condition of postgraduate medical instruction in the United Kingdom. Discussions: (3) the reforms in the present methods of instruction necessary to ensure technical proficiency in the general branches of medical practice; (4) the importance of the sociologic aspects of medicine (public health, school hygiene, tropical diseases, health insurance, physical training, etc.), in postgraduate medical instruction.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Jan. 17, 1913.

An Institute for Dietetics

There exists at Paris a Société scientifique d'hygiène alimentaire et d'alimentation rationnelle de l'homme. In pursuance of the purpose for which it was chartered this society is to build an institute for the study of the hygiene of nutrition. This institute will be a center not only of research and of teaching of the applied sciences of nutrition but also of popular education, where instruction will be given in simple terms, and principles necessary for the solution of practical dietetics will be taught. The department of research will comprise laboratories necessary for the study of all the sciences bearing on the general purposes of the society. The latter will construct along this line a room for the calorimetric determination of respiration (a *chambre respiratoire calorimétrique*). In addition to the meetings exclusively for members the society will have scientific and popular conferences, the latter as far as possible practical demonstrations and object-lessons so that all may understand the meaning of dietetics. Finally a bulletin will be published which will be a permanent record of all the transactions of the society and experiments done in connection with dietetics. The constitution of the society prevents it from considering industrial and commercial questions and enjoins its members from using, naming or recommending in any way commercial products.

Breathing Exercises by Means of a Bottle

While practitioners are agreed that the effects of breathing exercises are excellent, they often lack the time to go into details of the necessary movements and the attitudes to take so that the patient loses interest in a method which presents difficulties too great for him to overcome. Therefore Dr. Pescher has invented a simple and practical method which he described at one of the recent meetings of the Société de l'internat des hôpitaux de Paris. This process is based on the well-known physical phenomenon that a bottle filled with water and inverted in a receptacle containing a little water does not empty itself on account of the pressure of the atmosphere. Now if the equilibrium is disturbed by blowing into the interior of the bottle through a tube, a volume of water is displaced about equal to the amount of air introduced. As the normal capacity of the adult lung at each respiration is about half a liter (half a pint) if a patient is made to blow enough air into the bottle to displace a liter of water he will be obliged, as a preliminary, to inhale this amount of air which will result in a true breathing exercise since the quantity of air in circulation in his lungs will be double the ordinary amount. By the use of bottles graduated to all capacities this exercise can be prescribed in progressive amounts, in accordance with the condition of the patient's lungs as determined by the physician.

The patient is made aware from day to day of his progress not only subjectively but objectively. It is best to begin with receptacles of medium capacity: half a liter in the case of children, a liter with adults. Progress ought to be graduated according to the results obtained. One can go as far as 2 or 2½ liters with children and to 4 or 4½ liters with vigorous adults. Inspiration should be made through the nostrils and should be slow and rhythmic. The blowing into the bottle should be slow and regular—not a sudden exhalation—until the patient has become accustomed to the exercise; he should not entirely empty his lungs at first but as the patient progresses he may empty his lungs completely and drive as much water out of the bottle as he can. After each exercise of inhalation and exhalation he should rest for a time equal to that taken in the exercise. From ten to one hundred exercises should be done two or three or perhaps four times during the twenty-four hours. They should be taken between meals, on an empty stomach, before eating or an hour and a half after eating. Ten exercises done carefully require about a quarter of an hour. Those who get the most benefit from the exercises are narrow-chested children, those who have difficulty in respiration, patients with chlorosis, anemia and adenopathy, and neuropaths, convalescents from all acute affections of the respiratory tract, the pretuberculous and even the tuberculous. The wide range of possibilities in the exercise whereby as little or as much as is needed may be taken permits its application even in those cases in which breathing exercises are ordinarily contra-indicated. Dr. Pescher has been able to apply his method even in emphysema, hemoptysis, whooping-cough and certain forms of cardiac arhythmia.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Jan. 18, 1913.

Personal

On December 29 the well-known gynecologist of Jena, Bernhard Schultze, completed his eighty-fifth year. He published his method of swinging to resuscitate the new-born in 1866.

Professor Oberst, for many years assistant at the Freiburg surgical clinic, has retired from his position.

Professor Wullstein of Halle has been appointed chief physician of the miners' corporation hospital Bergmannsheil at Bochum, as successor of the deceased Professor Löbker, who was for many years president of the German *Aerztevereinsbund* (the league of united German physicians).

Professor Pfaundler of Munich has been appointed regular professor, as reward for his refusal to accept calls to the Strasburg and Leipsic universities.

Professor Salge has been called to the pediatric clinic at Strasburg, as successor of Professor Czerny.

Professor Hofmann, director of the hygienic institute of Leipsic, will retire on October 1.

F. Körte, father of the well-known surgeon of Berlin, celebrated January 16 his ninety-fifth birthday. He is considered the Nestor of the German medical profession and is beloved and esteemed in the widest circles. He played formerly an especially great rôle in the affairs of the profession.

A few days ago Professor Binz, the pharmacologist, who was formerly a regular professor at the Bonn university, died in his eightieth year. The Bonn pharmacologic institute was founded by him in 1869. His prominent works treat especially of quinin, salicylic acid, alcohol, halogens, ethereal oils, arsenic and the antagonism between morphin and atropin. He was also renowned as a teacher. Binz was the father-in-law of von Noorden, the clinician of Vienna.

Strike of Medical Students at Halle

After many negotiations, the strike of medical students at Halle, in regard to which I reported some time ago, has finally been brought to an end. The demand of the students has been granted, namely, that foreign students be not admitted to clinics until they have passed the preliminary medical examination (tentamen physicum) or else proved by a certificate that they had already passed an equivalent examination. This measure is now being introduced in the other universities, as students in various places have also threatened to suspend attendance at lectures.

University at Hamburg

The success of the Frankfort citizens, in their endeavors to secure the foundation of a university in their city, has aroused the ambition of some of the leading citizens of Hamburg, who have succeeded in inducing the senate of Hamburg to lay also before their citizens a project for the foundation of a university. However, the university is at first to have only three faculties, namely, legal, philosophic and for colonial commerce. The fact that a medical faculty is not to be included naturally meets with lively opposition on the part of many Hamburg physicians. On the other hand again, there are a number of those who are satisfied with this decision, because they fear that the establishment of a medical faculty would be disadvantageous to practitioners.

Regulation of Moving Picture Theaters

Our police have started a crusade against the unfavorable influences of improper moving picture shows on the young. According to a new regulation of the Berlin police, which came into effect the first of January, children under six years of age are absolutely excluded. Children from six to seventeen will be allowed to attend only special performances for the young. These shows must end at 9 o'clock and must be specially designated on the program of the play, at the entrance, as performances for the young. In many cases it will not be easy to determine the age of a young theatergoer; but at any rate, these new regulations present an effective arrangement by which it will be possible to protect our youth against the demoralizing influences of questionable moving picture theaters.

Decrease of Births in Berlin

The director of the municipal statistical bureau has just made a report as to the decrease of births in Berlin in 1911. In this year there were born in Berlin 44,834 children—a number which already in 1876 was surpassed by 1,464, that is at a time when the population amounted not quite to half of the present. As reckoned per 1,000 of population, the number of births amounted at that time to 47.19, while in 1911 it was

21.64—a decrease of not less than 54.1 per cent. Comparing the figures of legitimate and illegitimate children, the number of the illegitimately born has decreased. But this last consideration is of small consequence as regards the real point at issue. It is only necessary to point out that there is no reason for supposing that the number of illegitimates is decreasing. Investigations of the figures gives the following results: The fertility of marriages in Berlin has been decreasing since nearly the middle of the 70's; in 1910 it amounted to 37.7 per cent. of the maximum reached in 1876. A characteristic feature is the marked decrease of mothers who have borne three or more children in the last few years. The decrease in the number of births in the last five years was least among the younger married women capable of bearing children, and greatest among the older. As regards the different parts of the city, those populated mostly by working classes show the greatest proportional decrease of legitimate births.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Jan. 20, 1913.

The Medical Home in Marienbad

The second report of the Aerzteheim in Marienbad shows that this institute is doing a large amount of good for diseased physicians. The institute is the result of the modern ideas of organization of our noble profession, with a view of helping ourselves. It is supported by contributions, by medical organization chiefly from Austria and Germany, and offers free board and lodging, or free lodging only, to physicians requiring the baths of Marienbad.

The "Lupus Home" in Vienna

A few instructive facts about the Vienna Lupus Institute have become known to the general public from the report of this charitable home made recently. It has been demonstrated that more than two-thirds of all cases of lupus begin in childhood, and that a children's department is therefore of the utmost importance. This will be contained in the new institute to be opened shortly. In the old house more than 2,000 cases have hitherto been treated by all recognized means: surgery, *x*-rays, Finsen light and radium. It is interesting to note that the reputation of the institute is so well based that numerous applicants from all over the world come for help, and that gifts and bequests are becoming frequent now.

The Medical Profession in 1912

The year which has just ended has been rather negative as regards the economics and social ethical attainments of the profession in Austria. There were three different problems under consideration: first of all, the national insurance against sickness and accidents, which in the form the government gave it would spell ruin to the general practitioner. Stout resistance was offered to this scheme, and the profession has been able to make its just position and its legitimate demands clear to the general public and the legislative bodies. The bill has not passed the preliminary stage yet, nor is it likely to do so soon; at any rate, the gain of time is also a gain of weight of our arguments with the lawgivers. The second important problem concerns the medical regulations (*Aerzte-Ordnung*) which are intended to bring modern stipulations into our antiquated laws concerning the rights and duties of the physician. The coercion to practice, as well as a number of gratuitous services, hitherto imposed on the practitioner, will be done away with under certain conditions, and some of the most onerous conflicts between the conscience of the physician and citizen (professional secrecy in court) have been modified to the wishes of the profession. This bill, too, has been left undiscussed, and numerous obstacles are yet in its way before it may become a law. A third bill is that dealing with epidemics and public health (*Seuchengesetz*). In this case the bill has been discussed several times, and as it imposes expenses on the state and municipalities it was several times rejected in committee. This bill is quite up to date. It stipulates the right of the community to protect the common welfare by certain measures against those who endanger it. It requires the notification of infectious diseases, disinfection, vaccination, the hearing of officers of health in all cases in which public health is involved, it deals with diseases among cattle and with modern disposal of town refuse and waste, and it orders the payment of the physician for some of the work done in the interest of the state. Nevertheless, or perhaps because of these sensible clauses, the law has met so much opposition that it will take long before it passes the two legislative bodies of our parliament.

Association News

THE MINNEAPOLIS SESSION

Announcement of Excursions in Connection with the Annual Meeting of the American Medical Association

The Committee on Arrangements for the session of the American Medical Association at Minneapolis, June 17-20, 1913, is planning special excursions to follow. One of these will be to the Yellowstone National Park by means of a special train leaving Minneapolis Friday evening, June 20, on the Northern Pacific Railway. The train will include standard sleeping-cars, one or more special dining-cars and a parlor observation car. Its route will be through the Central and Western parts of North Dakota, passing through the famous Dakota hard-wheat belt, including the Dalrymple Farm of 21,000 acres and the Pyramid Park of North Dakota. It will arrive at Gardiner, the gateway of the Yellowstone Park, Sunday morning, June 22. Seven days will be spent in the Yellowstone in coaching trips, the several nights being spent at the principal resorts in the park.

A second party will leave Minneapolis for the same trip twenty-four hours later, Saturday, June 21, occupying one day less in the excursion. Return will be made to Minneapolis on Monday, June 30, or may be postponed to enable excursionists to make side trips to the Canadian or Colorado Rockies.

This Yellowstone excursion may be taken simply en route on a more extensive trip to the Pacific Coast and to Alaska. If a sufficient number of members prefer this more extensive journey, a separate party will be planned for the Alaskan visit, which may be extended at the pleasure of its participants over the ordinary route of excursion travel; or for those who desire a more essential pioneer experience, to remoter points.

Details with reference to these excursions may be had by communicating with Dr. H. H. Kimball, chairman of the Committee on Excursions, Minneapolis.

The entire expense of the trip will be covered by excursion tickets, including hotel accommodations, coaching travel and dining-cars.

THE JOURNAL has received a letter from the Department of the Interior, stating that a circular regarding publications of the government on the national parks will be sent to any interested member on request addressed to the Secretary of the Interior, Washington, D. C. General information pamphlets on the Yosemite, Yellowstone and Glacier national parks will also be sent on request.

Marriages

HARRY REX MCKELLAR, M.D., M. C., U. S. Army, to RUTH ALEXANDER, M.D., of Philadelphia, at Portland, Ore., Dec. 11, 1912.

RUPERT HOWARD FIKE, M.D., Spartansburg, S. C., to Miss Ethel Lee Ewing of Park City, Knoxville, Tenn., February 6.

JESSE P. RANDOLPH, M.D., Hot Springs, Ark., to Miss Anna Hudgins of Mena, Ark., January 19, at New Boston, Tex.

ROBERT PRESTON WINTERODE, M.D., Crownsville, Md., to Miss Emma Horn, Baltimore, at Baltimore, January 22.

JESSE FRANKLIN DONNELL, M.D., Crystal City, Mo., to Miss Bonita H. Gullick of Paris, Tex., Dec. 30, 1912.

MERRITT W. WHEELER, M.D., Glencoe, Minn., to Miss Ruth Funk of St. Paul, Minn., Dec. 12, 1912.

HIESTER H. MUHLENBERG, M.D., to Miss Anna Miller, both of Redding, Pa., January 22.

EGIL BOECKMANN, M.D., to Miss Rachel Hill, both of St. Paul, Minn., January 30.

JEAN VALJEAN COOKE, M.D., to Miss Mary A. Pettit, both of San Francisco, recently.

PETER SAUL WINNER, M.D., to Miss Minnie Weisbrod, both of Chicago, January 7.

AUGUST STRAUCH, M.D., to Miss Clara Loos-Tooker, both of Chicago, February 1.

Deaths

Parks Ritchie, M.D. Medical College of Ohio, Cincinnati, 1870; a member of the American Medical Association; professor and chief of the department of obstetrics and gynecology, and formerly dean of the College of Medicine and Surgery in the University of Minnesota; senior physician to St. Luke's Hospital, St. Paul, and consulting obstetrician to the St. Paul City and County Hospital; one of the most prominent and best-known obstetricians of the Northwest; died suddenly February 2, from cerebral hemorrhage, aged 67.

Clinton Stevenson, M.D. College of Physicians and Surgeons, New York City, 1889; a member of the Medical Society of the State of New York and Association of Military Surgeons of the United States; major, M. C., N. G., N. Y., assigned to the Eighth Coast Artillery; medical inspector in the New York Department of Health; for ten years a member of the staff of St. John's Hospital, Long Island City; died at his home, in New York City, January 22, from pleurisy, aged 47.

Ernest Palmer, M.D. College of Physicians and Surgeons, New York City, 1879; a member of the American Medical Association; for thirty years a member of the surgical staff of Long Island College Hospital; consulting gynecologist to King's County, St. John's, Jewish and Female hospitals, Brooklyn; clinical professor of gynecology in Long Island College Hospital; died at his home in Brooklyn, January 20, aged 63.

Sarah Josephine Wadsworth, M.D. New York Free Medical College for Women, New York City, 1876; for many years proprietor of a sanatorium for nervous diseases in Morristown, N. J., and later of the Valley View Sanitarium, Maplewood, N. J.; died in St. Elizabeth's Hospital, New York City, January 20, from senile debility, aged 71.

Charles Sturtevant, M.D. Harvard Medical School, 1862; assistant surgeon, U. S. Navy, during the Civil War; coroner of Milton and Hyde Park, Mass., from 1870 to 1877 and thereafter associate medical examiner for Hyde Park; first president of the Hyde Park Medical Club; died at his home, January 19, aged 73.

Richard G. Johnson, M.D. University of Pennsylvania, Philadelphia, 1883; a member of the Medical Society of the State of New York; formerly coroner of Montgomery County and for two terms health officer of Amsterdam; physician to the Amsterdam City and St. Mary's hospitals; died at his home, January 20, from angina pectoris, aged 54.

Francis Nelson Braman, M.D. Bellevue Hospital Medical College, 1866; a member of the Connecticut State Medical Society; for many years a member of the Board of Education of New London; dean of the medical staff of Memorial Hospital and a trustee of the Mainwaring Memorial Hospital; died in Dade City, Fla., January 15, aged 76.

William L. Zeigler, M.D. College of Physicians and Surgeons, Baltimore, 1881; a member of the Medical Society of the State of Pennsylvania; for two terms a member of the city council of Steelton and of the local board of education; died at his home in Steelton, January 20, from pneumonia, aged 57.

John J. McElroy, M.D. Starling Medical College, Columbus, Ohio, 1856; for many years a practitioner of Rossville, Ill.; surgeon of the One-Hundred and Twenty-Fifth Illinois Volunteer Infantry throughout the Civil War; died at the home of his daughter in Decatur, Ill., from influenza, aged 84.

Sharon John Thoms, M.D. University of Michigan, Ann Arbor, 1898; a missionary in Arabia since that time; for eight years manager of the hospital at Bahrien; died in Muscat, Arabia, January 17, from injuries received by the fall of a telephone pole.

William Benedict Bassell, M.D. Washington University, St. Louis, 1897; physician to the State Penitentiary, Columbus, O.; a veteran of the Spanish-American War; died suddenly in Lawrence Hospital, Columbus, from nervous breakdown, aged 36.

John Reddish, M.D., Starling Medical College, Columbus, O., 1863; one of the oldest practitioners of Clark County, O.; for a time a practitioner of dentistry in Yellow Springs, O.; died at his home in Springfield, O., January 14, from senile debility, aged 85.

Richard Cox Allen, M.D. Hahnemann Medical College, Philadelphia, 1868; died at his home in Frankford, Philadelphia, where he had practiced for sixty-three years, January 19, four weeks after an operation for ischiorectal abscess, aged 84.

J. W. Sorrels, M.D. Kentucky School of Medicine, Louisville, 1876; a Confederate veteran and a member of the Arkansas Constitutional Convention of 1874; died at his home in Mansfield, January 14, from pneumonia, aged 69.

John Morrison, M.D. Bellevue Hospital Medical College, 1892; of New York City; was burned to death in a fire which destroyed his summer home at the foot of Saurland Mountain, near Somerville, N. J., January 22, aged 61.

John Winslow Chase, M.D. Medical School of Maine, Brunswick, 1867; a member of the Massachusetts Medical Society; a hospital steward during the Civil War; died at his home in Dedham, about January 19, aged 73.

Ezra Barnes Aldrich, M.D. Harvard Medical School, 1868; a member of the New Hampshire Medical Society and one of the best-known practitioners of Hillsboro County; died at his home in Manchester, January 14, aged 72.

Guildford Dudley Wilkinson, M.D. University of Virginia, Charlottesville, 1871; of Paige, Texas; a Confederate veteran; died at the home of his son in Raspeburg, Md., January 21, from grippal pneumonia, aged 77.

John Boyd Talbot, M.D. University of Nashville, Tenn., 1854; a Confederate veteran; for many years justice of the peace; died at his home near Nashville, January 12, from senile debility, aged 80.

James Alexander Petrie, M.D. University of Pennsylvania, Philadelphia, 1866; a surgeon in the United States Navy during the Civil War; died at his home in Phillipsburg, N. J., January 23, aged 69.

Newton P. Hunter, M.D. Eclectic Medical Institute, Cincinnati, 1863; a veteran of the Civil War; died suddenly at his home in North Lewisburg, Ohio, January 20, from heart disease, aged 66.

Jacob E. Kimberlin, M.D. Ensworth Medical College, St. Louis, Mo., 1898; of Union Star, Mo.; died January 14, from pneumonia, at Brownsville, Texas, where he had gone on a hunting trip.

George Edmond Reynolds, M.D. University of California, San Francisco, 1887; a member of the American Medical Association; died at his home in Hayward, Cal., January 11, aged 56.

John H. Molony, M.D. Eclectic Medical Institute, Cincinnati, 1869; at one time township physician; died at his home in Symmes Corners, Ohio, January 16, from cerebral hemorrhage, aged 71.

W. W. P. McMillen, M.D. Medical College of Fort Wayne, Ind., 1878; a member of the Indiana State Medical Association; died at his home in Decatur, January 15, from heart disease, aged 66.

Jacob T. Gahm, M.D., Barnes Medical College, St. Louis, 1897; of Lallarpe, Ill.; died in St. Joseph's Hospital, Keokuk, Iowa, January 22, four days after an operation for appendicitis, aged 42.

Reuben Fletcher Dearborn, M.D. New York University, New York City, 1874; of Lynn, Mass.; died at the home of his daughter in London, Ont., January 19, from pneumonia, aged 62.

J. F. Meador (license, Tenn., 1889); for more than half a century a practitioner of Wilson County; died at his home near Watertown, January 11, from senile debility, aged 81.

Jay Gumm, M.D. Eclectic Medical Institute, Cincinnati, 1892; of McMillan, Okla.; died in a sanatorium in Dallas, Texas, January 21, a week after a surgical operation, aged 54.

Leroy S. Riggs, M.D. Eclectic Medical Institute, Cincinnati, 1892; of Wheeling, W. V.; died suddenly at the home of his aunt in Moundsville, W. Va., January 15, aged 52.

William A. Patterson, M.D. Cooper Medical College, San Francisco, Cal., 1878; of Santa Clara, Cal.; died in San Francisco, Nov. 11, 1912, from heart disease, aged 70.

C. W. Biggers (license, Kentucky, thirty years' practice, 1893); died at his home near Temple Hill, January 20, from disease of the kidneys, aged 75.

Samuel M. Bell (license, Somerset County, Pa.); a practitioner for forty-seven years; died at his home in Ellwood City, Pa., January 17, aged 68.

William Edgar McGrew, M.D. Eclectic Medical Institute, Cincinnati, 1886; died at his home in East End, Pittsburgh, January 13, aged 47.

John V. Lewis, M.D. Eclectic Medical Institute, Cincinnati, 1870; died at his home in Alliance, Ohio, January 16, from meningitis, aged 75.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THOREMEDIN

Report of the Council on Pharmacy and Chemistry

The report by W. A. Pusey[1] having questioned the claims made for Thoremedin, E. R. Squibb & Sons, in accordance with their letter,[2] submitted Thoremedin Paste and the preparations thereof—Thoremedin Liquid and Thoremedin Ointment—to the Council for consideration.

The products having been assigned to the Committee on Therapeutics, this committee secured the aid of experts to test clinically Thoremedin Paste side by side with a simple paste of sulphuric acid and lead sulphate, the identity of the two preparations not being disclosed to the experimenters. As the result of these experiments, together with other evidence, showed conclusively that Thoremedin Paste possessed no advantages over the simple sulphuric acid paste, the Council voted that Thoremedin Paste, along with its subsidiary preparations—Thoremedin Liquid and Thoremedin Ointment—be refused recognition.

The report was submitted to E. R. Squibb & Sons for comment. In reply the firm stated that in accordance with its agreement Thoremedin would be withdrawn from the market. The Council accordingly directed publication of the report which appears below as well as the letter of E. R. Squibb & Sons.

W. A. PUCKNER, Secretary.

REPORT ON THOREMEDIN TO THE COMMITTEE ON THERAPEUTICS

Liquor Thoremedin, Pasta Thoremedin and Unguentum Thoremedin were submitted to the Council by E. R. Squibb & Sons. In the submission the firm gave the following as the composition of Thoremedin Paste:

Lead sulphate	68.6 per cent.
Thorium sulphate	1.5 per cent.
Didymium sulphate	0.25 per cent.
Sulphuric acid, U. S. P.	27.60 per cent.
Nitric and hydrochloric acids	Traces
Moisture by difference	2.05 per cent.

In view of the report by Pusey[1] that the properties of the mixture depended on the sulphuric acid, and the counterclaim of E. R. Squibb & Sons that they depended largely on the thorium content, and because the claims made for the other preparations depended on those made for Thoremedin Paste, the Committee on Therapeutics, to which the products were assigned, decided first to take up Thoremedin Paste.

Inasmuch as it was possible, although not probable, that the emanations produced by the small amount of thorium sulphate contained in the paste might in some way affect the cauterant action of the sulphuric acid or influence the tissues after such cauterant action had ceased, the referee believed it necessary to make some practical trials as to the effect of thorium in such a sulphuric acid mixture. He therefore requested the A.M.A. Chemical Laboratory to prepare a sulphuric acid mixture agreeing in sulphuric acid content with Thoremedin Paste, thorium sulphate being omitted. This mixture was put up in vials identical with those which contained Thoremedin Paste, each being identified by numbers only. The referee secured the help of men of established reputation in the treatment of cancer and supplied each with specimens of Thoremedin Paste and of the A.M.A. sulphuric acid paste. The bottles containing Thoremedin Paste bore even numbers, while the A.M.A. paste was designated by odd numbers. The significance of the numbers was not known by the experimenters. The following reports have been received.

REPORT 1.—"We have concluded the clinical tests made with the preparations No. 7 [A.M.A.] and No. 8 [Squibb] sent to us from the Association Laboratories.

"In our opinion the action of the two preparations is practically identical when applied in a thick layer which is allowed to remain *in situ*.

"A single thin application of No. 8 [Squibb] allowed to remain exerts a more rapid and deeper action than one similar application of No. 7 [A.M.A.] although the same result can be secured by an additional application of No. 7 [A.M.A.].

"In one instance (lupus vulgaris) there was a better result from one thin application of No. 7 [A.M.A.] than No. 8 [Squibb].

"A thin layer of No. 7 [A.M.A.] wiped off after ten minutes produced slight desiccation of the surface of fibromatous nevus. A similar thin application of No. 7 [A.M.A.] wiped off after twenty minutes produced a decided destructive effect in the same nevus.

"If further details are desired we shall be glad to submit them."

REPORT 2.—"We tried the paste No. 1 [A.M.A.] and 2 [Squibb] in such cases as were available. In only one instance was it possible to test very accurately the action of the two mixtures. This was in a case of a negro in whom the nose and the greater part of the face had been destroyed by a carcinoma. The diagnosis was confirmed by microscopic examination. Here the paste was used on both sides of the nose.

"Neither the house officer, the resident, nor myself could see that there was any material difference in the action of the two pastes."

REPORT 3.—

"Sample No. 3 [A.M.A.]	"Sample No. 4 [Squibb]
Pure white color.	Grayish-white color.
Viscid consistency.	Not so viscid.
Absorbs water from the atmosphere.	Also absorbs water.
On standing separates slowly into a clear syrupy liquid and a white sediment.	On standing separates more rapidly into a syrupy brownish liquid and a grayish-white sediment.

"When well mixed and applied to the unbroken skin, *both* mixtures cause a stinging, burning sensation; No. 3 [A.M.A.] somewhat more than No. 4 [Squibb].

"After a three-minute application and then removal of the substance with a dry gauze, in the case of No. 3 [A.M.A.], the site of application shows a slight yellowish color. This is especially seen after treating hyperkeratotic lesions. This yellowish stain does not give the xanthoproteic reaction.

"After a similar application and removal No. 4 [Squibb] leaves a whitish spot.

"Both samples were used on pigmented moles, seborrheic warts, verrucae vulgares, and on the normal skin.

"The extent of action depends on the duration of application and on the amount used.

"Three-minute application of *both* samples to a large pigmented nevus resulted in destruction of the epidermis down to the deeper layers of the rete Malpighii.

"There seemed to be no marked difference in the action of the two samples except as above noted. They were both severe caustics, No. 3 [A.M.A.] seemingly slightly stronger than No. 4 [Squibb]."

These reports show conclusively that the action of the two preparations is practically alike and that therefore no particular virtues can be ascribed to the thorium or thorium emanations. The claims being incorrect and unwarranted, Thoremedin is in conflict with Rule 6. Although the action of Thoremedin depends on sulphuric acid, the name "Thoremedin" suggests that its activity depends on thorium or thorium emanations. Since the action is that of sulphuric acid the name must be held in conflict with Rule 8. Sulphuric acid having long been used as a cauterant, the attempt to introduce it as a new discovery must be held contrary to therapeutic advance, and hence Thoremedin is in conflict with Rule 10.

It is recommended that Thoremedin Paste be refused recognition for conflict with Rules 6, 8 and 10 and with it the subsidiary preparations—Thoremedin Liquid and Thoremedin Ointment. It is also recommended that this report be published.

1. Propaganda Department, THE JOURNAL A. M. A., March 9, 1912, p. 716.
2. Correspondence Department, THE JOURNAL A. M. A., April 15, 1912, p. 1135.

LETTER OF E. R. SQUIBB & SONS

Mr. W. A. Puckner, January 15, 1913.
Secretary, 535 Dearborn Avenue,
Chicago, Illinois.

Dear Sir:—In submitting to us an advance proof of the report on Thoremedin, adopted by the Council on Pharmacy and Chemistry, you give us an opportunity for any comment we might wish to make before publication.

We do not desire to make any comment on the action of the Council. Our position in this Thoremedin matter is plainly stated in our letter of March 11, 1912, addressed to the Editor of THE JOURNAL of the American Medical Association, and published in THE JOURNAL, April 13, 1912, pages 1135 and 1136.

In pursuance of that letter we now announce that we have discontinued the manufacture and sale of Thoremedin.

Very truly yours,
E. R. SQUIBB & SONS,
Theodore Weicker, Vice-President.

EDITORIAL COMMENT:—THE JOURNAL commends this action of E. R. Squibb & Sons, who not only submitted Thoremedin to the Council, but also promised in advance to abide by its decision. It appears from the firm's action in this case that if a product cannot stand scientific, controlled tests E. R. Squibb & Sons do not want to market it or to have the name of the firm connected with that product. This open-mindedness and readiness to profit by criticism redounds to the credit of the firm.

ODIN'S ALLEGED DISCOVERY OF A "CANCER GERM"

Our readers may remember that the most sensational matter appearing in the newspapers regarding Dr. Friedmann's tuberculosis "cure" was in the form of a syndicate letter by William Shepherd, a newspaper correspondent. The preceding week the newspapers had a similar sensational letter by the same writer concerning an alleged discovery of the cancer germ by a Dr. Odin of Paris. An article by Dr. L. K. Hirschberg of Baltimore regarding this also appeared in the *Technical World Magazine*, thus adding, as it were, a professional endorsement to the matter. On account of this publicity our readers may be interested in the following extract from a letter from Dr. Edwin Walker of Evansville, Ind.

" . . . One of my chief reasons for stopping in Paris was to investigate the alleged "cancer cure" of Dr. Gaston Odin, a report of which was published in newspapers throughout the United States.

"With a very intelligent interpreter, I went to his address, as given by the directory, 63 Rue Vaman. This is in a cheap quarter and the place proved to be a very modest apartment house. The janitor informed us that our doctor had just removed to Boulevard des Invalides, and there we found him in elegant apartments, newly furnished in the most expensive manner. The neighborhood was one of the best. Evidently prosperity was coming from some source.

"We were ushered in by a lady (who proved to be the doctor's wife) and were asked to wait until the doctor had finished his lunch; during this time we could inspect the gorgeous furniture (all new).

"Presently he entered, smoking a cigaret. He was small, about 5 feet 5 inches, weighed about 120 pounds, and was a typical Frenchman, about 45 years old, I should think. He looked well fed and well wined. He was very pleasant and talkative. His story was about as follows:

"He had been working alone on the cancer problem for fifteen years and had exhausted all his means. He was connected with no hospital and had no aid from any one. He had discovered the germ of cancer in the blood and had also found a remedy in a serum which would absolutely cure all cases.

"I asked him his methods of finding the germ, but he said he was not prepared to demonstrate it to me as his laboratory was in disorder.

"I asked him if he had published anything, and he gave me a short article, merely stating that he had found these germs but giving nothing of his methods, nor any proof, experimental or otherwise, that the 'germs' were really those of cancer.

"I then asked him about his serum. This was prepared by a process which he kept secret; he injected it under the skin, not at the site of the cancer.

"I asked him then if he was prepared to sell or formulate the serum to others. To this he answered that the French government would not allow him to sell a serum unless experts would pass on its value as well as its harmlessness. With this he broke out into a denunciation of governments in general and the medical profession in particular, because they interfered with his freedom in the matter. He was very anxious to know if he could do better in America. He was very willing to consider a proposition to buy the right to use his remedy elsewhere.

"I swallowed all this with a straight face and pretended great interest. He then volunteered to show me his cases in proof of what he had said. There were about a dozen patients waiting at the time. The first he brought in was a woman with a typical carcinoma of the breast, nearly as large as an English walnut. There were no enlarged glands under the arm. She had only a few treatments and from her own statement there had been no change. The patient should have been operated on at once.

"Then came two men suffering with cancer of the rectum; both said that they were better, but from the history I got from them I think they both had hemorrhoids. They certainly did not look as if they were suffering from cancer.

"The next was a man who undoubtedly had cancer of the larynx; he had been treated a month and said that he felt better; but he could hardly talk and certainly was in a very bad condition, lacking much of being cured.

"The next was a woman of 29. She had a tumor of the breast which had been removed by incision below; the breast had not been removed. She said that she had a return and that it had pained her. There was no evidence of return, no enlarged glands; in fact, every evidence showed that the trouble was benign and that the treatment had affected the patient's imagination only.

"I later inquired about Dr. Odin's professional standing and found that he was connected with no hospital, and with no medical organization so far as I could learn; that he had published nothing and made no demonstration of his discovery. He has never done any work on lines of research or investigation that any one knows. In short, he claims to have made the greatest discovery of the age, but nothing in his previous work or present evidence supports that claim.

"He did not appear to be overjoyed that he had found the greatest boon to the human race, but he seemed very anxious to make money, as he says only for his wife and children; he cannot afford to give it to the public on their account. He said that if some of our rich philanthropists would give him enough cash he would publish it.

"My guide said that Dr. Odin was not an educated man and spoke the 'commonest' French.

"To me there was a very sad side to this interview. He took me into his private office and showed me a large number of letters, most of them from America. These were from unfortunate sufferers from the worst of all diseases, who, in desperation, are appealing to this miserable little charlatan for relief; and this has been brought about by the unfair and distorted report published in papers which pretend to serve their patrons. . . . "

Correspondence

Morbidity Reports, Not Mortality Statistics, the Index to the Prevalence of a Disease

To the Editor:—In THE JOURNAL of Jan. 11, 1913, p. 129, the editorial entitled "Distribution of Pellagra in the United States" contains certain statements which I believe may give a wrong impression, a thing I know you are anxious to avoid. The passage in question is as follows:

"Although it is outside the province of the United States Public Health Service to collect such statistics, Lavinder, of that service, has attempted to gather figures concerning the prevalence and distribution of pellagra in the United States. The pellagra area lies to a large extent outside the registration area of the country and the figures obtainable through the United States Census Bureau are almost a negligible quantity."

Section 8 of an act of Congress entitled, "An act to increase the efficiency and change the name of the United States Marine-Hospital Service," approved July 1, 1902, reads:

"SEC. 8. That to secure uniformity in the registration of mortality, morbidity and vital statistics, it shall be the duty

of the Surgeon-General of the Public Health and Marine-Hospital Service, after the annual conference required by Section 7 to be called, to prepare and distribute suitable and necessary forms for the collection and compilation of such statistics, and said statistics, when transmitted to the Public Health and Marine-Hospital Bureau on said forms, shall be compiled and published by the Public Health and Marine-Hospital Service as a part of the health reports published by said service."

This, as you will note, gives specific authority for the collection and compilation of morbidity and other statistics of public health value.

To study the epidemiology of a disease properly or to control it effectively, a knowledge of the conditions under which it occurs and of its prevalence and geographic distribution is necessary. This knowledge can be acquired only through the recording of the occurrence of cases of the disease and the compilation and study of such records. The registration of deaths, important and necessary as it is for other reasons, with certain exceptions, does not show the prevalence of the diseases with which health officials are most concerned.

One or two illustrations may make my meaning clear. In the District of Columbia during 1908 there were 589 cases of measles reported for each death registered as due to the disease. On the other hand, carefully watched epidemics of measles have been recorded in which the fatality-rate was as high as 30 for each hundred cases. A knowledge of the deaths in either of these instances would be of little service to show the prevalence of the disease.

Small-pox in this country, in some states in which there have been thousands of cases over periods in certain instances of several years, has had only one death for every 500 cases, and yet in certain other outbreaks a third or more of the cases have terminated fatally. Here, again, the records of deaths would be useless to show the incidence of the disease. The same is true of many other diseases.

Pellagra in Italy has a comparatively low case-fatality-rate. We believe the rate to be much higher in this country, how high we do not know, and shall not be able to tell until we have satisfactory records of both the number of cases and the number of deaths.

RUPERT BLUE, M.D.,
Surgeon-General, Public Health Service, Washington, D. C.

Interpretation of Imaginative Creations by Psychanalysis

To the Editor:—In a recent issue of THE JOURNAL (Jan. 25, 1913, p. 307), appears a letter entitled "Excesses of the Freudian School," with particular reference to the application of psychanalysis to pathologic creations in literature. It appears that the letter was suggested by an editorial in the *Nation* which was devoted to a critical review of my recent book, "The Hysteria of Lady Macbeth." The general literary criticisms I left unanswered, but I feel compelled, from a medical point of view at least, to justify the views I expressed therein concerning the mental disease of Lady Macbeth, and to place the entire matter in the correct light before the medical profession.

The attempt at a critical interpretation of the sexual questions involved in such wide branches of medicine as psychopathology and psychanalysis by the writer of this letter who admits (to quote his own words), "I personally am frankly not in a position to judge," is a procedure which would not be tolerated in any other branch of scientific medicine. It is greatly to be deprecated that most of the criticisms of Freud's fundamental contributions to the psychoneuroses have come from physicians who have had little knowledge of psychanalysis and no experience in its practical applications to medicine. Above all, Freud's views concerning the sexual etiology of the psychoneuroses have not only been greatly misunderstood by the medical profession, but have likewise been grossly misinterpreted and subjected to a criticism unwarranted by the facts as established by clinical investigations.

Concerning Elizabeth Barrett, it need only be said that her psychoneurotic disturbance would have been treated far differently from isolation in a darkened room, had psychopathologic research reached the point in 1846, the time of her clandestine marriage to Robert Browning, that it has reached to-day. The only psychotherapeutic procedure then known was hypnosis. The exact nature of hypnotic suggestion and the mental mechanism of the hypnotic state have not been definitely determined until within the last few years. It seems strange too that the opinions of the "man on the street" should be listened to with respect concerning psychopathology, which is merely a branch of medicine, when the opinions of this man are valueless in far less difficult aspects of scientific medicine.

It is not necessary for the Freudians to strengthen their point of view by appeals to and analyses of imaginative literary creations, since the fundamental principles on which psychanalysis is based appear in the analysis and treatment of every psychoneurosis. Concerning Lady Macbeth alone, since this seems to be the chief point of contention, I would say that my interpretation of her pathologic mental state, which I diagnosed as hysteria whose etiology was an unconscious wish for a child, was based on the fundamental psychopathologic principles of repression, the action of unconscious complexes and mental dissociation, principles as fundamental in the psychical sphere as are the physical laws which control the circulation of the blood. Lady Macbeth's somnambulistic attacks too, as shown even by a literal reading of the text, were not only an accurate picture of the clinical manifestations of hysteric somnambulism, but were the only logical outcome of her hysteric state, in that the somnambulism was a defence reaction in which she found peace and refuge from the "tortures of the mind." When the doctor in this remarkable sleep-walking scene says "This disease is beyond my practice," he expresses the general attitude held by the medical profession toward these psychoneurotic symptoms until the investigations of modern psychopathology. Further, it can be shown that the same mental mechanisms are at work in the minds of the great poets who create these characters as in the clinical manifestations of the psychoneuroses. The psychopathologist is in a far better position to judge and interpret abnormal characters in literature than is the literary critic, who has had neither medical nor psychopathologic training. It seems then perfectly proper for the psychopathologist to undertake this task; and that he has been eminently successful in this undertaking is shown by the recent contributions of psychanalytic interpretations to fictitious literary creations. It is a proof too of the soundness of Freud's fundamental contributions to psychopathology, when it can be shown that the mental mechanisms of unconscious complexes, repression, dissociation and mental conflicts are the same for hysteria and the anxiety neuroses as for such purely fictitious creations as the mental disease of Hamlet and Lady Macbeth. Shakespeare's intuitive insight in creating these characters, so true to what is seen to-day in neurologic clinics, must ever be a source of admiration concerning the accuracy of his astonishing genius. Without exact scientific knowledge and at a period when such a quaint book as Burton's "Anatomy of Melancholy" expressed the complete knowledge of Elizabethan psychiatry, he was able to give a picture of hysteria in Lady Macbeth the clinical manifestations and mental mechanism of which corresponded to the latest advances in the conception of hysteria.

ISADOR H. CORIAT, M.D., Boston.

The Diagnostic Doubts of Dr. Cabot

To the Editor:—The personal note that vibrates through Dr. Russ' letter (THE JOURNAL, Feb. 1, 1913, p. 386), I can afford to ignore. I owe it to Dr. Cabot, however, in defense of whose honesty Russ breaks a Quixotic lance, to emphasize that neither by word nor by inference did I question the truth of his statements of fact or the honesty of his convictions. So Dr. Russ is fighting windmills. I merely contended, and still contend, that Cabot's facts form an inadequate basis for his conclusions, and that his deductions are misleading and dangerous. Just think of it; Russ knows of only two really, truly, honestly honest American medical men, and one of them has left the country. History repeats itself. Diogenes, I believe, was in the same fix.

As to the word-play "centipede-biped" (and the whole Russ letter is, of course, intended to illuminate my failure to put this aphorism into quotation marks) I am free to confess that I should have been more careful. I had heard or read the pun somewhere, but did not remember where, or by whom it was written, or its exact wording. I dare say I should have taken the trouble to look it up (incidentally a rather difficult job). It seemed apropos (I do not concede that it is either "good literature" or "brilliant") so I employed it. In THE JOURNAL office my original wording was changed and the sentence, I agree, improved thereby. Two other phrases, one by Schiller, the other by Duckworth, whose authorship and origin I knew, were duly placed in quotation marks.

I do not agree with Dr. Russ that there are grades of honesty, but I am willing to acknowledge that there are grades of pettiness.

ALFRED C. CROFTAN, M.D., Chicago.

Risk of Malpractice Suits from Use of Phylacogens

To the Editor:—In view of the fact that THE JOURNAL has seen fit to give timely and well-warranted warning (Feb. 1, 1912, p. 373) against the use of Phylacogens, it would seem that it might be proper to call attention to the fact that malpractice suits may result from the use of these products. Since the manufacturers advise against informing the patient of the "reaction" that may take place until the "remedy" has actually been administered, and until that time defer the "intelligent explanation" which should be forthcoming, one might pertinently ask how we are to make this explanation, being in the dark as to the nature of the "remedy" that we are using.

Careful perusal of the laws governing the practice of medicine will soon convince the careful physician that if he uses such a "remedy" as Phylacogen he will do so at his own peril and risk. This so-called remedy is nothing more than a secret proprietary, manufactured and controlled by a firm of manufacturing druggists, and its use in such a plainly serious disease as pneumonia or rheumatism, with their most frequent cardiac complications, has the possibility of results that may have serious consequences for the physician. It might be well for the physician who cares to run this risk to obtain a signed agreement from Parke, Davis & Co. that in event of his being sued for malpractice the firm will not only bear the expense of defending the suit but will also pay damages in case these are awarded. THE JOURNAL'S editorial, mentioned above, should be carefully read and well digested.

FRANK H. JACKSON, M.D., Houlton, Maine.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

COMPATIBILITIES OF HEXAMETHYLENAMIN

To the Editor:—Please inform me whether or not hexamethylenamin is compatible with (1) acetylsalicylic acid, (2) ammonium chlorid, (3) sodium salicylate and (4) codein sulphate.

JOHN T. THORNTON, M.D., Woodsdale, Wheeling, W. Va.

ANSWER.—With 1 and 2, no; with 3 and 4, yes; but it is to be remembered that hexamethylenamin is decomposed (hydrolyzed) slightly even by water, with liberation of formaldehyd, thus: $(CH_2)_6N_4 + 6H_2O = 4NH_3 + 6CH_2O$. This decomposition is decreased or prevented by alkali and increased by acids. Hexamethylenamin is a base and combines with acids to form salts. It also decomposes salts of alkalies weaker than itself; thus it liberates ammonia from ammonium salts just as do potassium and sodium hydroxids. The incompatibility of the drugs when mixed in the stomach would be slight, but if they were prescribed in a mixture, a considerable decomposition might occur. It may be of interest to take the matter up more in detail:

1. Hexamethylenamin reacts with acetylsalicylic acid to form the water-soluble hexamethylenamin acetylsalicylate. Hexamethylenamin, when triturated with acetylsalicylic acid, yields a mixture which gradually becomes pasty and gives off an odor of acetic acid, indicating some reaction with decomposition of the acetylsalicylic acid.

When to 0.1 gm. hexamethylenamin, in 10 c.c. of water, 0.1 gm. acetylsalicylic acid—slightly less than necessary to form the salt—is added, the latter dissolves completely. From such a solution, acetylsalicylic acid is precipitated by the addition of hydrochloric acid. When this solution is tested immediately the presence of formaldehyd is demonstrated. When the solution is allowed to stand for one-half hour at ordinary room temperature, the amount of formaldehyd liberated is increased, and when it is heated for the same length of time at body temperature, still more formaldehyd is liberated. When the mixture of hexamethylenamin and acetylsalicylic acid is treated with 0.2 per cent. hydrochloric acid (the average acid strength of stomach contents), more formaldehyd is liberated than under any of the above conditions. Consequently hexamethylenamin and acetylsalicylic acid should not be prescribed in the same mixture; but if the two substances are taken together into the stomach the ensuing change would not be greater than would occur in hexamethylenamin if given alone.

2. When hexamethylenamin and ammonium chlorid in molecular proportions are triturated together or when the two ingredients are dissolved in water, ammonia is evolved. The reaction which occurs is probably due to the formation of hexamethylenamin chlorid whereby ammonia is set free.

If a freshly made solution of hexamethylenamin and ammonium chlorid be tested no formaldehyd will be found. On standing one-half hour at room temperature some formaldehyd can be detected, while, when the solution is heated for one-half hour at body temperature the result is practically the same as when it is treated with acetylsalicylic acid.

3. Sodium salicylate and hexamethylenamin may be triturated without any apparent change. From the aqueous solution of sodium salicylate and hexamethylenamin, formaldehyd is liberated no more rapidly than from an aqueous solution of hexamethylenamin, and, under the influence of time, heat and acid, acts the same as the latter.

4. Codein sulphate and hexamethylenamin may be triturated together without any apparent reaction. In an aqueous solution of the mixture, formaldehyd is liberated a little more rapidly than in an aqueous solution of hexamethylenamin and ammonium chlorid. As in previous cases, when left standing the formaldehyd liberation is increased by heat and still more by the presence of acid.

ANESTHESIA—VACCINES—SPINAL CORD—URIC ACID

To the Editor:—1. When or under what circumstances is ether used for complete anesthesia, and when chloroform? When are ether and chloroform used in combination?

2. What is the principle underlying the injection of dead bacteria for vaccination? It would seem to me that dead bacteria have no power to create antibodies.

3. Where does the spinal cord terminate? Some authorities say that it ends before the last lumbar vertebra is reached; others that it tapers off and ends at the end of the sacrum.

4. A certain school of therapeutics contends that meat and coffee contain uric acid; an eminent physiologic chemist says that meat does not contain uric acid, but does contain certain compounds of the purin group, notably hypoxanthin, and that these are converted into uric acid in the organism and excreted in the form of that end-product. Which is right?

RAYMOND H. ARNOT, Rochester, N. Y.

ANSWER.—1. As a general rule, ether is considered safer than chloroform, and is chiefly used in this country. Chloroform, however, seems to be more frequently used in Great Britain and on the Continent. There is no rule determining when a physician or surgeon shall use chloroform in preference to ether, or vice versa. Chloroform has been preferred by many surgeons for use in operations on children and in obstetrics. While the A. C. E. mixture was formerly considerably used to secure general anesthesia, it is now seldom used.

2. It has been demonstrated that bacteria excite a reaction resulting in the production of immune bodies (antibodies) in consequence of the absorption of toxins existing in the bodies of the bacteria, which are usually liberated only after the death of the microorganism. Consequently an immunizing reaction is called forth by the toxins contained in dead bacteria as well as by those in the bodies of living bacteria.

3. The spinal cord terminates in the adult at the lower border of the first lumbar vertebra. In the fetus it fills the entire canal, but gradually retracts until at birth the lower termination is found at the third lumbar vertebra.

4. The "eminent physiologic chemist" is right. Meat contains purin bodies, such as hypoxanthin, and the caffein of coffee is a derivative of xanthin, known as trimethyl xanthin.

PHENOLPHTHALEIN AS A LAXATIVE AND ITS GENERAL COMPATIBILITY

To the Editor:—A neurasthenic patient of mine, a physician, wants to take a small dose of calomel, say ½ grain, with phenolphthalein, but is afraid there may be some chemical reason why the two should not be given together. Do you know of any reason why they may not be given in a capsule together. P. H. N.

ANSWER.—There appears to be no reason why calomel and phenolphthalein should not be given together so far as chemical compatibility is concerned. As both phenolphthalein and calomel are tasteless, these two drugs may be prescribed together in the form of powders either to be placed on the tongue and taken with a swallow of water, or enclosed dry in capsule, cachet or wafer.

Phenolphthalein is admirable when a laxative is needed, as it seems to produce no other effect than that of a cathartic. If merely a laxative action is needed, it is better to give a remedy with a single action, like phenolphthalein, than to combine two or more such remedies. If, however, other remedies that can be given in a dry form seem to be indicated, there is no reason why they should not be prescribed with phenolphthalein.

Although it is much better not to combine several laxatives, many physicians do, simply because it has become a habit to do so. For those who have and believe in the habit, it is easy to combine with phenolphthalein most drugs which can properly be prescribed in powders or pills. The discriminating physician will estimate the dose of each ingredient somewhat according to the susceptibility of the patient. A trial with phenolphthalein often shows that in some cases larger doses than usual are needed to move the bowels. This is an important objection to the use of ready-made mixtures. If we depend on the phenolphthalein as the active laxative in the mixture, it should be possible to increase the amount, if after two or three doses have been given the amount which we at first prescribed proves to be inefficient. Therefore, the mixture, if one is made, should be made for only a few doses, in order that we may increase the amount of phenolphthalein in a prescription without giving undue doses of the other ingredients. Thus:

		gm. or c.c.	
℞	Phenolphthalein	1	gr. xv
	Hydrargyri chloridi mitis	0.5	gr. viii

M. et ft. pulveres, xx.
Sig.: Take two at night.

DETECTION OF MORPHIN IN THE BODY

To the Editor:—Please inform me on the following points: The examiner in toxicology says that only a lethal dose of morphin will show in the spinal fluid, regardless of the mode of administration, and that only a trace need be discovered to show that a lethal dose had been given. On being questioned the examiner says that a morphin habitué would not show the drug in the cerebrospinal fluid even though 80 grains per day were taken, unless it happened to kill him. Then it would show. Will morphin taken hypodermically give test in stomach? The examiner's point is that a lethal dose and only a lethal dose will result in a positive test for morphin in the cerebrospinal fluid. PERRY S. WILSON, Houston, Tex.

ANSWER.—There are no established facts, as far as we are informed, that would justify the examiner in toxicology in the above statements. Although a number of writers refer to the presence of morphin in the cord after the administration of the drug, we can find no record of its detection in the spinal fluid; and the latter circumstance is in consonance with the well-known fact that solids pass from the circulation into the spinal fluid either with great difficulty, or not at all. In view of these facts we should be quite unwilling to base a diagnosis of morphin poisoning on a chemical examination of the spinal fluid, for if the results were negative we should not be justified in concluding that the alkaloid had surely not been administered.

As bearing on this question it should be borne in mind that morphin, in part at least, undergoes chemical change in the body and its detection, therefore, is sometimes a matter of difficulty. Numerous cases are reported in which morphin or opium are known to have been administered, even in large quantities, but in which none of the alkaloid was found on chemical analysis of the body after death. While, consequently, we expect to find the drug in many of the tissues and fluids when large doses are given, yet there is never a certainty that it will be discovered in any of them; and there is no reason for believing that the spinal fluid would be an exception to this rule.

Morphin when taken hypodermically is eliminated in part into the stomach and may usually be detected there by appropriate tests, especially if the dose given was large.

THE FRIEDMANN TUBERCULOSIS TREATMENT—WHY NOT READ THE JOURNAL?

To the Editor:—Please tell me what you know, and also what you think of Dr. Friedmann's treatment for tuberculosis. I see something every few days in the daily papers about Dr. Friedmann of Berlin, Germany, and his wonderful cure of tuberculosis, but THE JOURNAL has had nothing to say. I have been looking and hoping you would. I thank you very much for any information you can give me. P. R. T.

ANSWER.—We trust our correspondent will pardon us if we admit that on receipt of his letter we were not only peeved but amused—the latter, however, much more than the former. We have omitted his name and address, not by request, but so that he would not feel sensitive at the publicity given to his mistake. Scores have written us asking if the Friedmann matter has received consideration in our pages and, if so, where it could be found. This correspondent, however, cheerfully and blithely announces that on this subject "THE JOURNAL has had nothing to say. I have been looking and hoping you would." Well, we have devoted only seven columns to it—more than the matter will prove to be worth, we fear. We almost suspect that our correspondent does not regularly read our Current Medical Literature Department (Dec. 14, 1912, p. 2192); or our News Department (Dec. 7, 1912, p. 2081); or our Editorial Department (Dec. 14, 1912, pp. 2158, 2159); or our Correspondence Department (Jan. 4, 1913, p. 67); or our Department of Queries and Minor Notes (Jan. 4, 1913, p. 70, and Jan. 25, 1913, p. 309). Since the receipt of our correspondent's letter, another issue of THE JOURNAL has appeared containing another editorial reference (Feb. 1, 1913, p. 375).

EPIDEMIC CEREBROSPINAL MENINGITIS

To the Editor:—Please refer me to data on cerebrospinal meningitis, as we have a very severe epidemic in this part of the country. D. L. FLANARY, M.D., Dyersburg, Tenn.

ANSWER.—In THE JOURNAL, April 20, 1912, p. 1220, appeared a list of references to articles on epidemic cerebrospinal meningitis. The following have appeared in THE JOURNAL since that time:

King, H. D.: Prophylaxis of Cerebrospinal Meningitis, Feb. 10, 1912, p. 403.
Krulish, E.: Cerebrospinal Meningitis, Feb. 24, 1912, p. 551
Sophian, A.: A New Method for Controlling the Administration of Serum in Epidemic Meningitis, March 23, 1912, p. 843.
Herold, A. A.: A Virulent Case of Epidemic Cerebrospinal Meningitis; Four Hundred and Twenty Cubic Centimeters of Serum Administered; Recovery, Aug. 10, 1912, p. 444.
Sophian, A., and Black, J.: Prophylactic Vaccination Against Epidemic Meningitis, Aug. 17, 1912, p. 527.

In addition, we suggest that our correspondent write to the Public Health Service, Washington, D. C., for Reprint 69, a pamphlet of thirty pages on "Epidemic Cerebrospinal Meningitis."

DISINFECTION OF ROOMS

To the Editor:—Which of the various methods of fumigating rooms, such as school-rooms, is at present considered most efficient? WALTER REYNOLDS, M.D., Atlantic City.

ANSWER.—Room disinfection is best done by the generation of formaldehyd gas. It is not necessary to use a special apparatus for this purpose. One can hang up sheets saturated with the 40 per cent. aqueous solution of formaldehyd. The number of sheets varies with the size of the room. One sheet should be used for every 1,000 cubic feet. The room must be carefully and tightly closed and remain so for eight hours; then it should be thoroughly ventilated for eight or ten hours. It is advised by some that the discharge of gas into the room should be followed by the application of solutions of disinfectants to the woodwork.

STRENGTH OF HYPOCHLORITE IN PURIFYING WATER

To the Editor:—In THE JOURNAL (Jan. 18, 1913, p. 211), is an article entitled "The Hypochlorite Treatment of Water-Supplies." Can you give me the proportion that this agent is used in treating water? JAMES M. TISCHE, M.D., Wood Lake, Neb.

ANSWER.—Bleaching-powder or chlorinated lime is sold in the form of a dry, white powder and can be purchased in large containers at a cost of between one and one-half and two cents per pound. Exposure to air causes deterioration in strength, from absorption of moisture and carbon dioxid. When purchased in large quantities, the "available chlorin" should be determined by chemical analysis, and the purchase price fixed on this basis.

As a rule, the solution should be made up fresh in about 0.5 per cent. strength; that is, one pound of bleaching-powder to

two hundred pounds of water. This solution should be added to the water to be treated in the proportion of about five to fifteen pounds of powder per million gallons of water. The presence of a large amount of organic matter in the water or of iron in an incompletely oxidized state will make necessary the addition of larger quantities of germicide. If too much hypochlorite is added, an unpleasant odor may be imparted to the water; if too little, the germicidal action will be inadequate. Each problem is an individual one and should be studied with reference to the composition of the water. When such studies are impossible, and the water is clear and does not contain much organic matter, ten pounds per million gallons will usually be found a satisfactory amount.

ANTITYPHOID VACCINATION

To the Editor:—Please refer me to articles on antityphoid vaccination that have appeared since January, 1912.

CHARLES W. LÜDERS, M.D., Cynwyd, Pa.

ANSWER.—In THE JOURNAL, July 27, 1912, p. 293, appeared a Query and Minor Note on the administration of vaccine in typhoid in which a number of articles were cited. In addition to these the following may be referred to:

Russell, F. F.: Some Results and Fields of Usefulness of Antityphoid Vaccination, THE JOURNAL, Oct. 12, 1912, p. 1362.
Hachtel and Stoner: Inoculation of Typhoid in Public Institutions and in Civil Communities, THE JOURNAL, Oct. 12, 1912, p. 1364.
Spooner, L. H.: Antityphoid Inoculation; Three Years' Experience with Its Use in Training-Schools for Nurses in Massachusetts, THE JOURNAL, Oct. 12, 1912, p. 1359.
Weston, Paul G.: The Immunization Against Typhoid of Eight Hundred and Ninety-Eight Patients in an Institution, THE JOURNAL, Oct. 26, 1912, p. 1536.
Russell, F. F.: Antityphoid Vaccination in Children, THE JOURNAL, Feb. 1, 1913, p. 344.

THE PUBLICATIONS OF THE JOURNAL

To the Editor:—Many subscribers would appreciate a complete list of THE JOURNAL publications inserted weekly or monthly.

JAMES WILTSE, M.D., Brewster, N. Y.

ANSWER.—At the bottom of THE JOURNAL announcement on the second advertising page following the reading matter of each issue, is a reference to a price-list of the publications of THE JOURNAL.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

LEGISLATIVE NEWS

ARKANSAS

H. B. 40, providing for the creation of a board of examiners for nurses, has been introduced.

CALIFORNIA

A number of bills affecting public health have been introduced, including a bill to abolish compulsory vaccination; a bill to require reports on occupational diseases; a bill to reorganize the State Board of Medical Examiners and to create three boards of nine members each: one board of medical examiners of physicians, including three homeopaths and two eclectics; one board of examiners of drugless healers, composed of two osteopaths, two chiropractors, two mechanotherapists, two naturopaths and one "metaphysician," and one board of "religious practitioners" composed of nine members, no more than three of whom shall be members of any one system. Evidently, religious systems are plentiful in California. This bill carries the creation of sectarian licensing boards to an absurdity. Another bill appropriates $100,000 for the State Board of Health for the prevention of the introduction into the state of infectious diseases. The women's clubs and women voters of the state are said to be seeking the passage of bills to require health certificates as a condition for marriage license, the establishment of maternity homes for married women, mothers' pension bill, a bill increasing the age of majority of girls to 21, a bill providing for the state registration of nurses, and bills providing for the protection of children. A bill has also been introduced providing for general reciprocity for physicians' license in other states.

COLORADO

S. B. 122 provides for the protection of school children by state and local boards of health and for physical examination of school children. Mrs. Helen R. Robinson, a member of the state senate, has introduced four bills to provide for the reorganization of the pure-food-inspection department and for the appointment of a food and drug inspector by the governor, for an appropriation for dependent and neglected children, also a bill to prohibit the sale of misbranded foods and drugs, and one to provide for compulsory sanitation of factories, dairies, hotels and restaurants.

IDAHO

A bill has been introduced requiring a certificate of health before marriage.

INDIANA

The so-called "Dickinson bill" provides for compulsory instead of optional medical inspection of schools. Other bills provide for the abolishment of the common drinking-cup on interurban and railroad trains, and for sanitary cars. One bill requires all interurban and steam railway companies to furnish a minimum of 10 cubic feet of fresh air a minute for each passenger, also that all cars must be swept every twenty-four hours and thoroughly cleaned and disinfected every three days. A bill has also been introduced increasing the salary of the members of the State Board of Health.

IOWA

A bill has been introduced establishing a state epileptic colony.

KANSAS

S. B. 76, reorganizing the State Board of Health and providing for four physicians, four business men and one lawyer on the board, has been defeated in the House. S. B. 248 reorganizes the board and provides for a board of four physicians, one registered pharmacist, one manufacturer, one person engaged in the wholesale business, one in the retail business and one farmer. These bills are said to be introduced in the interest of the packing interests of the state who wish to put a stop to the activities of the present board in the prevention of food adulteration.

MINNESOTA

A bill has been introduced appropriating $100,000 for a county tuberculosis sanatorium; also a bill requiring all fees collected by state boards to be turned into the state treasury. The State Board of Health has asked for an appropriation of $45,000 for a district health officer in each congressional district. A bill has been introduced abolishing public drinking-cups, also one amending the present cold-storage bill; also a bill requiring all persons engaged in the manufacture, handling or sale of any foodstuffs to secure a certificate showing that they are in good health.

MICHIGAN

A bill has been introduced providing for the sterilization of epileptics and criminal insane; also a bill appropriating $50,000 to hire ten sanitary experts to make a sanitary survey of the state; also a bill requiring a certificate of health as a condition for a marriage license.

MISSOURI

A bill has been introduced, with the approval of the governor, providing for a state medical supervisor to instruct physicians of the four state asylums.

MONTANA

A bill has been introduced providing for a state board of examiners for nurses.

NEW HAMPSHIRE

H. B. 303 is a new medical practice act. It provides for a board of five persons appointed by the governor which shall examine applicants in anatomy, physiology, hygiene and pre-

ventive medicine, surgery, clinical medicine, obstetrics and gynecology, bacteriology, chemistry and toxicology.

NEW YORK

A bill to regulate midwifery by the creation of a committee of three persons has been introduced in both houses. The special health commission appointed by Governor Sulzer, referred to in THE JOURNAL last week, has begun the holding of hearings at Albany. A bill has been introduced appropriating $150,000 for a state hospital for tuberculosis.

NORTH CAROLINA

The model bill for the registration of births and deaths, with an appropriation of $12,000 for its enforcement, has been introduced into the state legislature; also bills making tuberculosis a reportable disease, and allowing the county board of education to pay for part of the time of the county health officers.

NORTH DAKOTA

H. B. 38 appropriates $125,000 for laboratories at the state university for public health purposes. Another bill appropriates $6,500 for the state tuberculosis sanatorium. S. B. 33 prohibits common drinking-cups. S. B. 48 regulates cold-storage warehouses. H. B. 36 provides for the proper sanitation of hotels, making specific provision regarding sewage and toilet arrangements, bedrooms, bedding, sheets, carpets, kitchen utensils, etc.

NEW MEXICO

S. B. 27 forbids the distribution of samples of medicine or any substance injurious to life or health. S. B. 23 is a sterilization bill somewhat similar to the New York law of 1912. It provides for a board consisting of a surgeon, a neurologist and the president of the State Board of Health, authorized to examine feeble-minded, epileptic, criminal and other defective inmates in the reformatory, charitable and penal institutions of the state. In case the board decides that the individual examined should be sterilized, application must be made to the judge of the district court, who will assign counsel for the person examined and hear the evidence. Findings of the district court are subject to review by the supreme court.

OHIO

An optometry bill (H. B. 116), a sterilization bill, a bill regulating marriage and a bill providing for a "naturopathic board" (H. B. 114), have been introduced; also H. B. 105, providing for a state board of registration for nurses, H. B. 109, regulating the labeling of drugs, and H. B. 120, providing for the maintenance of the children of inmates of any penal institution.

OKLAHOMA

The following bills have been introduced in the Senate: S. B. 206, creating a board of chiropractic examiners; S. B. 207 regulating cold-storage warehouses; S. B. 209, providing for the medical inspection of rural schools; S. B. 219, regulating the practice of medicine and surgery. The following bills have been introduced into the House: H. B. 315, creating a state tuberculosis sanatorium and making appropriation therefor; H. B. 316, defining the powers of local health officers and boards of health; H. B. 333, authorizing the state examiner of health to hold an annual conference of county superintendents of health; H. B. 335, providing for the sterilization of confirmed criminals and defectives; H. B. 337, providing for the reporting of contagious and infectious diseases; H. B. 338, providing for the inspection of all charitable and penal institutions of the state by the state examiner of health; H. B. 353, requiring all railroad companies to maintain hospital service for employees; H. B. 282, regulating marriage licenses. The following bills have been reported on favorably by the House Committee; H. B. 334, providing for the reporting of all births and deaths; H. B. 93, regulating the practice of dentistry; H. B. 346, regulating the sale of patent and proprietary medicines, and defining misbranding; H. B. 347, providing for the sanitation of places where foods or drugs are prepared, manufactured, stored, sold or distributed, and providing for the licensing and inspection of slaughter-houses.

PENNSYLVANIA

The Pennsylvania Society for the Prevention of Tuberculosis has approved a bill to be introduced into the legislature, authorizing the voters of any community, on petition of 5 per cent. of their number, to vote for the establishment of a tuberculosis hospital, and the issuing of bonds for its erection and maintenance. A general pure-food bill has been introduced, prohibiting the use of sodium benzoate, sulphur dioxid, coal-tar dyes, and, in the case of confectionery, shellac and varnish.

TEXAS

Among the bills introduced in the Texas legislature so far are an optometry bill, a bill providing for sanitary school buildings, a bill providing for compulsory medical examination of school children, a bill providing for the establishment of county tuberculosis hospitals, a bill giving the State Board of Charities control over all state charitable institutions and a bill imposing civil-service restrictions on all physicians in the state service. The governor, in his annual message, strongly commended the State Department of Health and its work during the past year.

UTAH

Among the measures introduced so far are bills requiring a medical certificate for marriage license, authorizing the sterilization of criminals, extending the optometry law and providing for a more rigid meat inspection.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

CONNECTICUT: Regular, City Hall, New Haven, March 11. Sec., Dr. Charles A. Tuttle, 196 York St.; Homeopathic, New Haven, March 11. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave.; Eclectic, New Haven, March 11. Sec., Dr. Thomas S. Hodge, 19 Main St., Torrington.

KANSAS: National Hotel, Topeka, February 11. Sec., Dr. H. A. Dykes, Lebanon.

MAINE: City Hall, Portland, March 11-12. Sec., Dr. Frank W. Searle, 776 Congress Street.

MASSACHUSETTS: State House, Boston, March 11-13. Sec., Dr. Edwin B. Harvey, Room 159, State House.

MISSOURI: St. Louis, February 24-26. Sec., Dr. Frank B. Hiller, State House, Jefferson City.

NEBRASKA: Lincoln, February 12-13. Sec., Dr. C. P. Fall, Beatrice.

WYOMING: State House, Cheyenne, March 5-7. Sec., Dr. A. B. Tonkin, Riverton.

Maryland Homeopathic December Report

Dr. O. N. Duvall, secretary of the Homeopathic Board of Maryland, reports the written examination held at Baltimore, Dec. 13-14, 1912. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. Only one candidate, a graduate of the Hahnemann Medical College and Hospital, Chicago, 1912, was examined and he passed with a grade of 85.6.

Arizona October Report

Dr. John Wix Thomas, secretary of the Arizona State Board of Medical Examiners, reports the written examination held at Phoenix, Oct. 7-8, 1912. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 11, of whom 9 passed and 2 failed, including one osteopath. The following colleges were represented:

College	Year Grad.	Per Cent
PASSED		
Rush Medical College	(1908)	85.2
College of Physicians and Surgeons, Keokuk	(1888)	78.8
University of Louisville	(1903)	77.1
College of Physicians and Surgeons, Baltimore	(1904)	79.6
Detroit College of Medicine	(1907)	84.1
Johns Hopkins University	(1901)	83.9
Ohio Medical University	(1901)	77.7
University of Pennsylvania	(1911)	85.1
University of Toronto, Ontario	(1907)	75
FAILED		
University of the South	(1906)	68.5

Missouri October Report

Dr. Frank B. Hiller, secretary of the Missouri State Board of Health, reports the written examination held at Kansas City, Oct. 1-3, 1912. The number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 48, of whom 40 passed and 8 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Howard University, Washington, D. C.	(1912)	79
Rush Medical College	(1912)	88, 88
Northwestern University Medical School	(1912)	89
Bennett Medical College	(1912)	88
University of Kansas	(1912)	87
University of Maryland	(1909)	85
Barnes Medical College (1896) 79; (1897) 78; (1901) 75; (1911) 77.		
University Medical College, Kansas City (1902) 75; (1911) 75; (1912) 75, 75, 80, 81, 83.		
St. Louis College of Physicians and Surgeons	(1911)	76
Ensworth Medical College	(1912)	78, 80
St. Louis University	(1908)	82
American Medical College	(1912) 75, 76, 77, 77, 79, 80	
Washington University	(1912)	86
Missouri Medical College	(1897)	77
Miami Medical College	(1891)	82
Jefferson Medical College	(1875) 79; (1910) 89; (1912)	79, 88
Meharry Medical College	(1911)	76
Vanderbilt University	(1911)	76, 85
Royal University of Palermo, Italy	(1906)	*
University of Edinburgh, Scotland	(1903)	83
FAILED		
University of Arkansas	(1912)	64
College of Physicians and Surgeons, Keokuk	(1898)	45
Barnes Medical College	(1905) 64; (1911)	60
St. Louis College of Physicians and Surgeons	(1908)	68
American Medical College, St. Louis	(1912)	68
Meharry Medical College	(1910) 62; (1912)	59

* No grade given.

Wyoming October Report

Dr. A. B. Tonkin, secretary of the Wyoming State Board of Medical Examiners, reports the written examination held at Riverton, Oct. 9-11, 1912. The number of subjects examined in was 10. Total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 3, all of whom passed. Three candidates were licensed through reciprocity. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Maryland Medical College	(1911)	84.4
Harvard Medical School	(1912)	90.4
University of Nebraska	(1905)	75.5

LICENSED THROUGH RECIPROCITY College	Year Grad.	Reciprocity with
Drake University	(1907)	Iowa
Northwestern University Medical School	(1912)	*
Washington University, St. Louis	(1911)	Illinois

* No state given.

Arkansas November Report

Dr. F. T. Murphy, secretary of the State Medical Board of the Arkansas Medical Society, reports the written examination held at Little Rock, Nov. 12-13, 1912. The number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 33, of whom 23 passed and 10 failed. Eighteen candidates were licensed through reciprocity. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
College of Physicians and Surgeons, Little Rock	(1910)	76.9
University of Arkansas	(1903) 79.7; (1912) 75.5, 76.8,	76.8
Chicago College of Medicine and Surgery	(1912)	80.8
Jenner Medical College	(1912)	80.1
University of Louisville	(1910)	78.6
Louisville Medical College	(1912)	89
College of Physicians and Surgeons, Kansas City	(1898)	82.3
St. Louis College of Physicians and Surgeons	(1905)	79.2
American Medical College, St. Louis	(1912)	80.3
University of Oklahoma	(1911)	75.5
Jefferson Medical College	(1896) 85.2; (1903) 83.9; (1912)	88.2
Meharry Medical College	(1907)* 73.1; (1912) 77.2,	84.7
Vanderbilt University	(1898) 90.3; (1910)	82.8
Memphis Hospital Medical College	(1912) 80.8,	90.1
FAILED		
University of Arkansas	(1911) 70.8; (1912) 67.5,	74.2
College of Physicians and Surgeons, Little Rock	(1910)	48.8
Chicago College of Medicine and Surgery	(1911)	72.5
Louisville and Hospital Medical College	(1908)	72.9
American Medical College, St. Louis	(1912)	65.7
College of Physicians and Surgeons, Memphis	(1909)	71.7
Meharry Medical College	(1912)	53.4
University of Tennessee	(1912)	67.9

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Howard University, Washington, D. C.	(1903)	Dist. Colum.
Rush Medical College	(1907)	Illinois
Northwestern University Medical School	(1901)	Illinois
Chicago College of Medicine and Surgery	(1905)	Illinois
Indiana Medical College	(1906)	Indiana
University of Louisville	(1910) (1911, 2) (1912, 2)	Kentucky
Kentucky University	(1905)	Kentucky
Hospital College of Medicine, Louisville	(1899)	Texas
Maryland Medical College	(1908)	Texas
St. Louis College of Physicians and Surgeons	(1893)	Kentucky
Jefferson Medical College	(1905)	Vermont
Memphis Hospital College of Medicine	(1886)	Texas
University of Texas	(1908)	Texas
University of Virginia	(1910)	Virginia

* Five per cent. allowed for years of practice.

Kentucky December Report

Dr. J. N. McCormack, secretary of the Kentucky State Board of Health, reports the written examination held at Louisville, Dec. 12, 1912. The number of subjects examined in was 15; percentage required to pass, 70, and not less than 60 in any one branch. The total number of candidates examined was 19, of whom 18 passed and 1 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Louisville and Hospital College of Medicine (1908)*	(1908)	78
University of Louisville (1898) 86; (1909) 70; (1911) 73, 74; (1912) 72, 73, 78, 80, 82, 87.	(1910) 74, 79;	
Louisville National Medical College	(1911) 77; (1912)	70
Southwestern Homeopathic Med. Coll. and Hosp.	(1908)	84
Eclectic Medical College, Cincinnati	(1905)	70
FAILED		
Louisville National Medical College	(1912)	50

* No grade given.

Book Notices

A MANUAL OF SURGICAL TREATMENT. By Sir W. Watson Cheyne, Bart., C.B., D.Sc., Senior Surgeon to King's College Hospital, and F. F. Burchard, M.S., F.R.C.S., Surgeon to King's College Hospital. In five volumes; Volume 3. Cloth. Price, 86. Pp. 575, with 271 Illustrations. Philadelphia: Lea & Febiger, 1912.

The third volume of this edition corresponds to Volume IV and part of Volume V of the first edition. It deals with surgical affections of joints, and of the spine, head and face. It has been thoroughly revised and considerable new material has been added; the authors, however, continue to recommend drainage in suppurative diseases or even contused wounds of joints, although it has been shown again and again that non-drainage treatment more quickly produces a cure and that ankylosis never results. The drainage treatment is usually followed by ankylosis. New operative methods are described, especially for the treatment of fractures, dislocations, unreduced fractures and recurrent dislocations, as of the shoulder-joint, in which the capsule is incised and then imbricated. Arthroplasty is described briefly but favorably. The authors believe that it is a most promising operation. The section dealing with surgical conditions of the head and face is enlarged considerably. The operative procedures for tumors of the brain are described more fully, and new measures, such as temporal and occipital decompression, are included. The Cushing operation is recommended for removal of the Gasserian ganglion. New and better illustrations have superseded many of the old ones.

A TEXT-BOOK OF GENERAL BACTERIOLOGY. By Edwin O. Jordan, Ph.D., Professor of Bacteriology in the University of Chicago. Third Edition. Cloth. Price, 83 net. Pp. 623, with illustrations. Philadelphia: W. B. Saunders Company, 1912.

In this edition the chapter on leprosy has been rewritten to express present knowledge on the subject, and the chapters on cholera and typhoid have been completely revised. Recent work on poliomyelitis, measles and typhus fever has been summarized so as to present briefly and concisely what has been done in the study of the bacteriology of these diseases. The description of technical procedures in the field of serodiagnosis has been considerably amplified and clarified. Evidences of careful revision are everywhere apparent.

PRACTICAL ANATOMY. An Exposition of the Facts of Gross Anatomy from the Topographical Standpoint and a Guide to the Dissection of the Human Body. By John C. Heisler, M.D., Professor of Anatomy in the Medico-Chirurgical College of Philadelphia. Cloth. Price, $4.50. Pp. 790, with 366 illustrations. Philadelphia: J. B. Lippincott Company, 1912.

This is another of the numerous dissecting manuals and laboratory guides for the study of anatomy. The number of such books published shows that none of them is entirely satisfactory. Dr. Heisler's book contains practical instructions in dissection, which are often overlooked in preparing such text-books. Too often the teacher of anatomy forgets that the study of the human body requires not only mental application but also manual dexterity. We have all of us seen the freshman student, without training or preparation in biology, suddenly thrust into the dissecting-room, given a scalpel, a pair of forceps and a dissecting manual, and assigned a part of the human body and left to work out his own salvation. He generally does it by a burst of enthusiasm for the first week, during which he destroys most of the anatomic structures. After this, he gets through his dissection with as little labor as possible and learns a few isolated and unrelated anatomic facts, most of which he promptly forgets before his senior year. Probably in no branch of medical instruction is the application of modern ideas of pedagogy needed more than in the study of human anatomy. The directions for dissection, with the illustration in the first chapter of Dr. Heisler's volume, are particularly commendable, as are the photographs showing the lines of skin incision, the surface markings and the nerve distributions. Rather more attention is paid to ligaments, bursae and tendon sheaths than in most such books. The plates on the dissection of the perineum are especially good. Probably it is asking too much to expect any one laboratory manual on anatomy to possess all of the good points desirable in such a volume. So long as opinions on methods differ, the anatomic departments of each of our larger medical schools will probably develop methods and text-books of their own.

ORAL SURGERY. A Text-Book on General Surgery and Medicine as Applied to Dentistry. By Stewart LeRoy McCurdy, Professor of Anatomy and Oral Surgery, School of Dentistry, University of Pittsburgh. Cloth. Price, $3. Pp. 469, with 228 illustrations. New York: D. Appleton & Co., 1912.

This book is the first of a series of text-books projected by the Institute of Dental Pedagogics to cover all the subjects that should be presented in a dental school. In Part 1 of this volume are included brief chapters on bacteriology, inflammations, infections, syphilitic and non-syphilitic, and some general considerations as to treatment not specifically applying to dentistry, as of wounds, burns, scalds, poisoned wounds, injuries to the vascular system, hemorrhage, foreign bodies in various cavities, shock, asphyxia, and the general principles of asepsis and anti-epsis. Part 2 takes up the deformities, diseases and injuries which are treated by surgical means coming within the province of the dental surgeon; discusses the effect of impaction and delayed eruption of teeth in producing constitutional and local conditions remote from their etiologic source, and describes the various methods of managing and treating surgical conditions about the mouth, face and head. The subjects are set forth briefly but clearly, and the text is supplemented by numerous *x*-ray and other illustrations, making it a satisfactory text-book on oral surgery.

METHODS OF ORGANIC ANALYSIS. By Henry C. Sherman, Ph.D., Professor of Food Chemistry in Columbia University, Author of "Chemistry of Food and Nutrition." Second Edition. Cloth. Price, $2.40 net. Pp. 407, with 18 illustrations. New York: Macmillan Company, 1912.

After a period of six years this book now appears newly revised and enlarged. It contains considerable new subject-matter, and the references concluding the chapters have been increased and brought up to date. The book is written for both the student and the professional chemist; procedures generally used in laboratory instructions for beginners are described in greater detail, while methods of analysis intended for the practical or professional chemist are stated more briefly. The following new subjects have been added: solid and liquid fuels; industrial alcohol; drying oils; crude petroleum; new international methods of glycerin analysis, and quantitative methods for the testing of enzymes. The sections on aldehyds, sugars, proteins and food preservatives have been enlarged. These additions, together with the incorporation of recent advances in the original material, make this edition practically a new work, containing the latest information available in text-book form on the subject of organic analysis.

PRACTICAL ANATOMY. The Student's Dissecting Manual. By F. G. Parsons, F.R.C.S., Lecturer on Anatomy at St. Thomas' Hospital and at the London School of Medicine for Women, and William Wright, M.B., D.Sc., F.R.C.S., Lecturer on Anatomy at the London Hospital. Two Volumes. Cloth. Price, $2.40 net. New York: Longmans, Green & Co., 1912.

The authors have prepared a two-volume work which will commend itself to students of anatomy. Probably the student will prefer to use it because the anatomic nomenclature most in vogue is used in preference to the B. N. A. When there is a marked difference between the terms now in use and the B. N. A., the latter are given in brackets. The text is concise but clear. The directions for work are given briefly, but nothing of value has been omitted. A large number of good illustrations serve further to elucidate the text. Volume I is devoted to the head and lower extremities, Volume II to the thorax, abdomen, pelvis and upper extremities. The type is large and the book is printed on a smooth dull paper which does not tire the eyes. One good feature to which attention should be called is the fact that every structure to be dissected out is printed in italics so that it is set off from the remainder of the text.

PREVENTABLE CANCER. A Statistical Research. By Rollo Russell. Cloth. Price, 4 shillings 6 pence. Pp. 167. New York: Longmans, Green & Co., 1912.

Russell attempts to arrive at the causes of cancer by the study of statistics from all parts of the world. He proceeds on the principle which has long been generally accepted that irritations have a determining effect in the etiology of cancer, and he studies the figures from this point of view, keeping in mind principally the irritations from too hot foods, alcohol, condiments and the toxins resulting from a high protein diet. Russell believes that cancer occurs most frequently in the wealthiest countries among persons living on a rich, stimulating diet. Although he correctly asserts that the statistical method of studying diseases is a valuable auxiliary in medical research, the inadequacy of general statistics even in the most highly civilized countries must render any conclusions only tentative or problematic. Many interesting facts, figures and opinions on cancer are collected and set forth in this book.

TEXT-BOOK FOR NURSES. Anatomy, Physiology, Surgery and Medicine. By E. W. Hey Groves, M.S., F.R.C.S., Assistant Surgeon, Bristol General Hospital, and J. M. Fortescue-Brickdale, M.A., M.D., Assistant Physician, Bristol Royal Infirmary. Cloth. Price, $4.50. Pp. 407, with 205 illustrations. London: Henry Frowde, 1912.

This is a rather ambitious compend of anatomy, physiology, surgery and medicine for the use of nurses. The authors have presented the subjects in text-book style without making much attempt to apply them in a practical way to the nurse's art. The book is well illustrated, especially in the section on anatomy, many of the illustrations being in color. On account of the brevity of the text these illustrations are necessary in order to give any intelligent idea of the subject. An appendix contains illustrations and descriptions of diagnostic instruments and methods, urinalysis, and methods of collecting specimens for the laboratory.

A PRACTICAL MEDICAL DICTIONARY. Words Used in Medicine, with Their Derivation and Pronunciation, Including Dental, Veterinary Chemical, Botanical, Electrical, Life Insurance and Other Special Terms; Anatomic Tables of the Titles in General Use and Those Sanctioned by the Basel Anatomic Convention; Pharmaceutical Preparations, Official in the U. S. and British Pharmacopeias and Contained in the National Formulary; Chemical and Therapeutic Information as to Mineral Springs of America and Europe and Comprehensive Lists of Synonyms. By Thomas Lathrop Stedman, A.M., M.D. Second Edition. Leather. Price, $5 net. Pp. 1025, with illustrations and thumb index. New York: William Wood & Co., 1912.

The arrangement of this dictionary is a good one; definitions of terms like "Graves' disease" are as a rule given directly under "Graves'" instead of as a subtitle under "disease"; when long lists of subtitles are necessary, they are paragraphed. Scientific terms for conditions associated with a disease or part are given in small type under the English title; for instance, under "dropsy" among the definitions are:

[dropsy of abdomen], ascites; [dropsy of chest], hydrothorax; [general dropsy], anasarca, hydroncus, hydrosarca. Under "specialist" are [eye specialist], oculist, ophthalmologist; refractionist (fitter of glasses); optometrist (non-medical fitter of glasses); optician (maker of glasses). Chemical symbols appear alphabetically and are defined. Stedman is trying to improve medical nomenclature by introducing new terms in place of some old ones of derivation which he does not approve; but his failure to make use of cross-references will probably render his efforts largely ineffective. In the preface he says, "For example, one who consults this dictionary for a definition of 'oophorectomy' will be referred to 'oothecotomy' and under that title will find the definition." Unless the seeker for information has previously read the preface, we fear that he will not be referred to "oothecotomy" by the entry under "oophorectomy"—"oothecotomy, ovariotomy"—which he will probably take for a niggardly or unskilful definition.

Chance or specialized interest appears to have guided the selection of illustrations, in which obstetric and surgical subjects—monstrosities, instruments, etc.—seem to predominate.

As previously indicated, the work possesses many good features; greater experience and longer contact with the demands of the public will doubtless tend to remove such imperfections as exist.

LUNGENCHIRURGIE. Von C. Garré, Professor der Chirurgie an der Universität, und H. Quincke, em. Professor der inneren Medizin an der Universität Kiel. Second Edition. Paper. Price, 7.50 marks. Pp. 250. Jena: Gustav Fischer, 1912.

Since the first edition, in 1903, the advancements which have been made in surgery of the lungs and of the chest walls have been so numerous and so striking that the authors have worked over and rewritten practically the whole volume. Great changes have been made in the methods of overcoming the intrathoracic pressure during operations by means of negative and positive pressure apparatus, and all these various devices are clearly illustrated and described. In addition to the usual transthoracic operations on the lungs, considerable space is devoted to the removal of foreign bodies from the lungs by the tracheal route, operations for the removal of tumors of the mediastinum, the various thoracoplasties for tuberculosis, Freund's operation for emphysema, Trendelenburg's operation for the removal of emboli of the pulmonary artery, etc. Each chapter is followed by a short but well-selected bibliography. Illustrations are numerous and well executed. The volume, which is not large, brings this department of surgery well up to date.

ELECTRIC INJURIES. Their Causation, Prevention and Treatment. Designed for the Use of Practical Electric Men. By Charles A. Lauffer, A.M., M.D., Medical Director, Relief Department, Westinghouse Electric and Manufacturing Company. First Edition. Cloth. Price, $0.50. Pp. 77. New York: John Wiley & Sons, 1912.

Flash and contact burns are briefly described and simple methods of treatment outlined. The chief point of value made is that many persons rendered apparently lifeless by electric shocks may be revived by the timely use of artifical respiration; a simple method of performing it, called the "prone pressure method," is described and illustrated. Following this are brief chapters on "Minor Surgery and First Aid," "Infections" and "Effects of Occupation on Health," in which is found little more than a few simple, every-day facts in physiology.

THE MOSQUITO: Its Relation to Disease and Its Extermination. By Alvah H. Doty. Cloth. Price, $0.75. Pp. 79, with 10 illustrations. New York: D. Appleton & Co., 1912.

In this little book the author gives an interesting account of the life-history, characteristics and habits of the different varieties of the disease-carrying mosquitoes, together with illustrations of their various stages of existence. Methods of exterminating the inland and salt-water varieties of mosquitoes are pointed out, the only effective one, the author believes, being the eradication of all breeding-places by drainage and otherwise. The book is a good medium for the dissemination of knowledge concerning the disease-carrying mosquito.

DEUTSCHE HEILSTÄTTEN FÜR LUNGENKRANKE. Geschichtliche und statistische Mitteilungen. V. Tuberkulose-Arbeiten aus dem Kaiserlichen Gesundheitsamte. 13 Heft. Berichterstatter: Dr. Hamel, Regierungsrat im kaiserlichen Gesundheitsamte. Paper. Pp. 124. Berlin: Julius Springer, 1912.

This number of the series of tuberculosis monographs from the Imperial Health Office deals with the results of a statistical investigation of nearly 50,000 patients with pulmonary tuberculosis treated in the sanatoriums of Germany in the period from 1902 to 1904. The question of the permanent results of sanatorium treatment is thoroughly discussed from the point of view of the general and local condition, especially of the findings as to the condition of the lungs. Patients treated with tuberculin are considered separately. The results obtained in the period from 1902 to 1904 are compared with those of the period from 1896 to 1901.

EMERGENCY MEDICAL AND SURGICAL AID. What to Do and What Not to Do. By Ernest A. Wells, M.D. Paper. Pp. 48. Ætna Life Insurance Company, Hartford, Conn., 1911.

This is a pamphlet for distribution among policy-holders and others with a view to furnishing instructions to the layman for use in emergencies. The paragraphs on different subjects are arranged alphabetically under the name, making it easy to find any desired subject. The pamphlet is also illustrated with three plates showing resuscitation after drowning; two plates showing the removal of foreign bodies from the eye; and three plates on the transportation of the injured. The publication of such a book by the insurance company is another gratifying indication of the increasing interest of commercial organizations in the conservation of human life.

OUTLINES OF GENERAL AND SURGICAL NURSING. By Winifrid Frederick Lindsay, Superintendent of the Training School for Nurses of the Paradise Valley Sanitarium, National City, Cal. Cloth. Price, $1. Pp. 114. Loma Linda, Cal.: College Press, 1912.

This work differs from the better-known text-books of nursing in manner of presentation of subjects—the style is so concise as to be practically tabular, at times almost diagrammatic. It is a pity that so many superintendents of small hospitals seem to consider it necessary to write text-books of nursing.

Medicolegal

Admissibility of Evidence in Malpractice Case—Skill and Care Required of Specialists and of Physicians Generally

(Johnson vs. Powell (Kan.), 123 Pac. R. 881)

The Supreme Court of Kansas reverses a judgment rendered for the plaintiff for alleged malpractice, remanding the case for a new trial, on account of error in the admission of evidence. The patient was a Mrs. Sly, for whom the administrator of her estate, Johnson, was substituted as plaintiff after the recovery of the judgment and her death. The court says that Mrs. Sly suffered an injury to her finger, and applied to the defendant, a physician and surgeon, for treatment. As he was attending another patient, he did not reach Mrs. Sly until about two hours after the injury, or until the hand was considerably swollen. After an examination, he decided that there was a partial dislocation and also a slight fracture of the bone, and undertook to reduce the dislocation, treating it in the usual way by placing splints and bandages on the finger. He visited her two or three times at her home, and each time examined and treated the injured finger, when she complained that it was causing her great pain. Subsequently she returned to her work as saleswoman in a store, but complained that she suffered much pain from the injury. She called at the defendant's office a number of times, and was given treatment, but frequently expressed dissatisfaction that greater progress toward recovery was not made. In about five weeks after the injury she discontinued her visits to the defendant, and one after another consulted, or was treated by, other physicians, finally having the finger amputated.

The defendant denied the plaintiff's allegations of a want of care and skill, and averred that if she had not recovered from the injury it was due to her impaired condition, and to the fact that she did not follow the directions and advice given to her by himself and other physicians, nor take ordinary care of herself. But, in view of the testimony that there was an admitted dislocation of the finger in the first instance, testimony that it was stiff and out of position when the splints and bandages were removed, and that it remained in that condition until it was examined by another physician and his assistant, nearly six months after the injury, and their testimony that the finger was partly out of joint when they operated on it, and that, after the adhesions had been broken and the dislocation reduced, the finger became movable, the circulation became better, the swelling went down, and the finger became more natural in appearance, it could not be said that there was no testimony tending to support the allegation that the defendant failed properly to reduce the dislocation, and to exercise the skill and care required in the subsequent treatment of the finger, although all the medical testimony as to the condition of the finger from the time of the injury until consultation with that other physician tended to show that the defendant had properly set the finger, and had treated it with ordinary care and skill.

Testimony as to expressions of a natural and spontaneous character, indicating present bodily pain, was competent as original evidence; but the declarations of an injured party as to his past feelings and suffering, or which are not voluntary exclamations of existing pain and suffering, are mere hearsay, and should be rejected. Non-expert witnesses could testify as to the external appearances and manifest conditions observable by any one; but whether a surgical operation has been performed with a reasonable degree of skill, learning, and care, such as is ordinarily possessed and exercised by surgeons and physicians in the treatment of their patients is a question of science, and is to be established by the testimony of surgeons and physicians having special skill and knowledge, and not by unskilled witnesses, who are without training or knowledge as to the injuries sustained, or the art of treating them. While some palpable conditions may be understood and stated by a layman, the questions whether there was a fracture of the bone, or whether the articular surfaces of the joint were normal, or whether a nerve had been pinched between the broken surfaces, and whether, in the condition of the finger, the defendant had given the patient skilful and proper treatment, should not be determined on the testimony of unskilled witnesses.

Nor should the plaintiff be permitted to try to repeat statements that another physician was said to have made to her when she consulted him. A physician cannot be convicted of malpractice on hearsay evidence, or on the testimony of what some one else has said about an injury and of his treatment of it. If this practice were permissible, it would only be necessary for a patient, in order to make out a case of malpractice, to procure an examination by several physicians, and then repeat the statements and declarations which they made to him. It is safer to call the experts themselves as witnesses, and thus obtain their opinions at first hand, under the sanction of an oath, and, at the same time, afford the adverse party an opportunity to cross-examine them.

There are those who specialize and give their time and thought to a limited field, and who become thoroughly educated and exceedingly expert in their specialty. It may be that they can be held to a higher degree of skill and care; that is, to have and exercise the degree of skill and knowledge possessed by physicians and surgeons who devote special attention and study to particular organs and parts of the body, and to the treatment of them; but there was no basis in this case for holding the defendant to a higher degree of skill and care than is ordinarily possessed and exercised by members of his profession.

The rules applicable to this case, and which correctly measured the degree of skill and care required of the defendant, were contained in instructions which told the jury that a physician is required to possess a reasonable degree of learning and skill only. He is required to exercise ordinary care and diligence in the treatment of a patient, and is not responsible for errors of judgment in matters of reasonable doubt. He does not insure a cure; and, in the case of a dislocated finger, the fact that the finger does not do well under his treatment does not of itself alone show negligence on the part of the physician. All he is required to do is to use ordinary care and diligence in the treatment of the patient. A physician or surgeon is required only to apply correctly in his practice methods which are well understood and settled in his profession; and, if there are different methods of treatment recognized by the profession, he is required only to use his best judgment, under all of the facts and circumstances, as to the method of treatment that should be used in any particular case.

Practice of Medicine as a Religious Matter

(State vs. Peters (Kan.), 123 Pac. R. 751)

The Supreme Court of Kansas affirms a judgment convicting the defendant of practicing medicine without a license. The court says that he professed to treat sick and diseased people, maintained an office for that purpose, and treated patients for the cure and relief of bodily infirmities or diseases by examination of the person and by rubbing the parts of the body supposed to be affected, doing this as a business for fees charged therefor. His principal contention was that the evidence showed that he was not practicing medicine, surgery or osteopathy, but was practicing a religious belief only. He explained his practice thus: "First had my attention called to healing people about twenty-five years ago from the study of the Bible. I supplemented that study by different branches. I have religious beliefs as to healing. I believe that the words of Jesus Christ in regard to healing can be carried out now just the same as they ever could. I believe from my study of the Bible and my supplemental study that I can carry out to some extent the healing as by Him practiced. My conviction is that I can do the work and ought to do it, and this has been my belief during the past three years; and it is my conviction that it is a duty I owe, and must perform it. My supplemental studies have been psychology and suggestive therapeutics. I have studied the Weltmer system of suggestive therapeutics." The president of the Weltmer Institute was also a witness, and he and another witness, who was a graduate of several regular medical schools, testified that the system of suggestive therapeutics does not involve the practice of medicine or surgery. But as the treatment given by the defendant consisted of manipulations and rubbing over parts of the body supposed to be affected, in short, he was regularly engaged in soliciting, receiving and treating patients for bodily infirmities, for fees charged and collected, he was subject to the provisions of the statute creating a board of medical registration and examination and regulating the practice of medicine, surgery and osteopathy. The opinions of witnesses, however learned in their profession, cannot prevail against the legislative enactment. The claim of the defendant that he only practiced a religious belief within the exception to the statute, which declares that nothing in the act shall be construed to interfere with any religious beliefs in the treatment of diseases, cannot be sustained. The place and value of suggestion in the treatment of diseases need not be discussed; for, apart from this, the defendant engaged in the practice requiring an examination under the statute. Nor need what particular services or practices are within the exception be discussed, as the evidence failed to show that the defendant was exempt from the operation of the statute. The exception does not exempt from the operation of the act one who practices in the manner and by the means the defendant did, although he believes that the words of Jesus in regard to healing can be carried out; that from Bible study and supplemental study of psychology and suggestive therapeutics he can to some extent carry out such healing practices; and that it is his duty to do so. The medical practitioner may entertain any belief his conscience approves; but this will not excuse him from a failure to observe the laws of the state regulating the calling in which he is engaged.

Society Proceedings

PHILADELPHIA COUNTY MEDICAL SOCIETY

Meeting held Dec. 11, 1912

The President, DR. L. JAY HAMMOND, in the Chair

SYMPOSIUM ON BLOOD

Normal Blood, Constituents and Methods of Examination

DR. HARRY A. DUNCAN: The blood carries many extractives, as urea, uric acid, creatin, creatinin, xanthin, hypoxanthin, cholesterin, sugars, fats, soaps and enzymes. Besides these there are innumerable bodies for the protection of the body. The total amount of blood contains about 14 gm. of hemoglobin to 100 c.c. of blood. Of the methods of determining the hemoglobin the Fleischl-Miescher instrument is the best. Its disadvantages are the high cost and the need of a dark room. The Dare instrument is handy and fairly accurate. The Tallqvist scale is handy and cheap and should be used by every one who does not care to provide a more expensive instrument. The counting of cells requires long practice and most careful manipulation. In the differential count I would recommend to the general practitioner Leishman's stain as the simplest, with excellent results.

Pathology of the Red Blood-Corpuscle

DR. A. G. ELLIS: Changes in number are easily detected by a simple count. Decrease in number is a pathologic condition of the red cell present in every anemia. Recovery rarely occurs after reduction to 500,000. Noteworthy increase in size (the presence of megalocytes) occurs only in pernicious anemia. Of the three types of change in staining reaction, the first is increased paleness of the central portion due to diminution in hemoglobin; the second is abnormal coloration of the entire cell, polychromasia; the third is the presence of basic staining granules in an otherwise normally stained cell. Recent studies indicate that the second and third types are young, unripe cells entering the blood too early because of changed conditions in the bone-marrow. The third, basophilic granulation, reaches diagnostic importance only in chronic lead-poisoning and even here it may show daily fluctuation. Chlorosis is not to be diagnosed from the blood alone. The low color-index (or ratio between red cells and hemoglobin) is the most characteristic point in the blood-picture of chlorosis. Secondary anemias form a great group of cases in which the blood changes are dependent on, and secondary to, lesions other than in the blood-forming organs; they include cases in which the circulating red cells are acted on directly by some noxious agent, as in malaria and other hemolytic anemias. In these cases the anemia is a symptom, instead of a disease as in the primary form. With the exception of those cases due to parasites, therefore, examination of the blood does not furnish a diagnosis of the disease causing the anemia. This is true even in cases of suspected malignant tumors in which a diagnosis would be of the greatest possible value. The blood-picture does aid at times in differential diagnosis, but largely by the condition of the leukocytes. The examination of the blood is absolutely diagnostic of one primary anemia, progressive pernicious anemia. It is confirmatory and necessary in the diagnosis of a second, chlorosis. It is diagnostic of polycythemia. Except in parasitic affections it is not diagnostic of the disease causing a secondary anemia, but it is of decided value in determining the condition of the patient who has the anemia.

Purpuras, Hemophilia, Coagulation, Plasma Studies, Etc.

DR. JOSEPH MCFARLAND: Hemophilia is a disease. Its fundamental error seems to be found in inhibition of the coagulation of the blood, and a study of the blood made by Wright shows that the coagulation-time is greatly prolonged. A careful analysis of the factors concerned shows that the usual factors of coagulation are all present in the blood of the hemophiliac, but that the thromboplastin is deficient both in the cells of the blood and in the cells of the tissues. The problem of checking hemorrhage in hemophilia is one of supplying the thromboplastin. This is best accomplished: (1) by applying blood-serum to the bleeding area; (2) by applying tissue extracts to the bleeding area; (3) by crushing manipulations by which the injured cells will be found to yield thromboplastin. These measures and the success following their employment are exemplified by reports of various authors.

Purpura is a symptom. It is always secondary to infections and toxic conditions. In order that the hemorrhages occur, it is necessary that the bacteria produce some substance whose chief quality is to act as an endotheliolysin. The venom of the rattlesnake is particularly rich in endotheliolysin, as pointed out by Flexner. Any organic or inorganic substance capable of acting in a similar manner is capable of producing purpuric spots, and of the inorganic substances, mercury and the iodids are known to do so when given in excess, and lead when given experimentally. Of the organic substances known to do so, copaiba, quinin, belladonna and ergot may be mentioned. There are probably numerous bacteria that have endotheliolytic powers under certain circumstances not perfectly known. Of these streptococci, staphylococci and pneumococci, the hog-cholera and other hemorrhagic septicemia organisms must be mentioned. In cases of infection a different mechanism may also require mention, namely, the occurrence of minute thrombi and of infarctions. From these lesions, the hemoglobin rapidly liberated from the corpuscles may stain the tissues.

The most recent experimental research on purpura seems to be that of E. Marshall Cowell. It would seem as though Cowell had been unfortunate in the selection of his microorganisms, which are not those known to be most frequently associated with purpura, and equally unfortunate in repeating the conditions under which purpura is known to occur. Exactly what the necessary conditions are it is difficult to say, but it is not unlikely that they have to do with the agglutination or aggregation and local colonization of the bacteria in greater numbers than occur in the introduction of killed cultures or in ordinary fatal septicemia. In regard to the production of experimental purpura, Cowell's results have been negative. It appears that the oft-quoted positive experiments must, at any rate, not be accepted at present.

Blood-Serum, Pathology and Reactions

DR. E. P. CORSON WHITE: Serum reactions have developed along with the experimental studies in immunity. Many are of tremendous scientific importance, others of suggestive clinical value but still in an experimental stage, while some have undoubted diagnostic importance. These are: the agglutinin reaction, used especially in diagnosis of typhoid and *a* and *b* paratyphoid, and of practical use in differentiating many species of bacteria; precipitin reaction, primarily useful in identification of proteins and in the forensic test to determine specificity of blood spots; opsonic index, a method of measuring the resistance of a patient, and the complement-fixation test; of tremendous value in diagnosis of lues and as a guide to its treatment. Aside from these tests of proved value, there were described the most promising test for cancer, the complement-fixation test similar to the Wassermann reaction, the Freud Kaminar reaction, the epiphanin and miostagmin reactions, none of which seems specific enough to be of much aid, and lastly, the antitryptic reaction, which, suggested for diagnosis of cancer, is probably only a cachetic reaction.

Treatment of Leukemia

DR. H. K. PANCOAST: It may conservatively be stated that no absolute proof exists that a case of leukemia has ever been permanently cured by radiation or any other form of treatment. In the light of our present knowledge on the subject the best we can do is to give the patient the greatest possible prolongation of life in comparatively good general health. Radiation has accomplished more than other methods of treatment, but the *x*-ray is not indicated in every case. It is contraindicated in acute lymphatic leukemia. Based on the belief that the primary seat of the disease is in the bone-marrow and that the process of cell proliferation therein is akin to

the growth of certain of the neoplasms, we have treated all of our cases for several years along such lines that the exposures have been directed primarily to the bones, leaving the radiation of the secondary enlargements to a later period. We have found the following among the essential factors in successful treatment: systematic radiation of all the bones except the skull; exactness in dosage; daily applications if possible; persistence in treatment until every manifestation disappears if this be possible; the observance of every possible precaution against a dermatitis (the length of the patient's life may depend on the condition of the skin); the avoidance of toxic manifestations; exposure of the spleen and other enlargements at a safe period; a close watch over the patient, if treatment is stopped because of a disappearance of all manifestations of the disease, and an immediate resumption of treatment on the reappearance of the first manifestation in the differential count; the judicious use of arsenic, which should never be used in large doses during radiation.

The special advantages of this method over the older one are: 1. The expectation of life is greater. 2. Strength and capacity for work are regained at a comparatively early period and maintained with a fair degree of comfort to within a short time of death. 3. There is less danger from toxemia and less risk of dermatitis.

Treatment of Anemias

DR. THOMAS MCCRAE: Early diagnosis and the institution of prompt treatment are important factors in the management of pernicious anemia. Absolute rest is the first essential in treatment. Almost to a man, however, these patients object to being at rest. As much good food as possible should be taken with the proper regard for the condition of the digestion. Of drugs, only one is of value: arsenic in some form. There are some encouraging results reported of salvarsan. Of a number of comparatively new methods of treatment; one is the use of blood-serum. The results are most disappointing. The method is adapted not to the general practitioner but to the men working especially on the blood problems. I think we cannot yet pass final judgment on blood transfusion in pernicious anemia. My own feeling, however, is that its employment is not justified. I am confident that there are unfortunate results which have never been reported. There are odd instances of good results, but more of unfortunate results. In the after-care it is well to see the patients as a rule once a month.

In the treatment of acute severe secondary anemia which follows hemorrhage particularly, the surgeons have rendered valuable assistance. Here transfusion is of much aid. Many of the other measures are apt to be harmful because the patient has a low blood-pressure. Up to a certain point the low blood-pressure is a saving factor. Drugs that raise the blood-pressure are better left out. Unless the patient is in collapse it is better to leave things more to Nature than often we are inclined to do. In the treatment of the chlorosis in the secondary anemias, rest in bed is of first importance. Great attention should be paid to the bowels. Iron is the drug indicated. I have a strong belief in the value of the inorganic preparations, giving from 20 to 30 grains a day of the Blaud mass. Arsenic is of advantage, but especially valuable is the iron. Then too, after the blood has become normal the patient should be kept on iron. In splenic anemia the surgeons have shown us that extirpation of the spleen is the only treatment of value if the diagnosis is made sufficiently early and the patient's condition warrants removal. The one thing I would emphasize in the whole question of the treatment is the value of rest in bed, out of doors if possible, and lots of good food, with the indicated drug. Whatever else you do, bear in mind the importance of absolute rest.

A Case of Heredity.—"Procrastination is the thief of time" but Inconvenience is the mother of Procrastination, and Indifference and Laziness are the parents of Inconvenience. With such heritage you could not expect much better of poor Procrastination.—*Nature and Culture.*

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (N. Y.) Medical Annals

January, XXXIV, No. 1, pp. 1-62

1 Fracture of Femoral Neck; Its Anatomic Treatment. C. E. Ruth, Des Moines, Iowa.
2 Symptomatology of Cerebral Abscess; Diagnosis and Indications for Surgical Intervention. L. Archambault, Albany, N. Y.
3 Inflammation of Macule. J. J. O'Brien, Schenectady, N. Y.

American Journal of Anatomy, Philadelphia

January 15, XIV, No. 2, pp. 119-282

4 Development of Prootic Head Somites and Eye Muscles in Chelydra Serpentina. C. E. Johnson, Minneapolis.
5 *Development of Mucous Membrane of Large Intestine and Vermiform Process in Human Embryo. F. P. Johnson, Boston.
6 Effects of Distention of Intestine on Shape of Villi and Glands. F. P. Johnson, Boston.
7 Histology of Sensory Ganglia of Birds. E. V. Smith, Evanston, Ill.

5. Development of Large Intestine.—The large intestine, like the esophagus, stomach and small intestine, Johnson says, is at first a simple tube of epithelium and is the last portion of the digestive tube to show distinctive changes in the form of its mucosa. The first change which occurs is the formation of longitudinal folds and ridges. The ridges and folds first appear in the rectum and then extend upward (orally). A second point of growth is found in the ascending colon at the colic valve. The direction of growth here is in the opposite direction (aborally). The transverse colon is the last portion of the large intestine to develop ridges and folds. A few vacuoles similar to those found in the esophagus, stomach and small intestine are found in the epithelial wall of the large intestine in its early stages. The longitudinal folds are replaced by villi in a manner which suggests a segmenting of folds. However, it is not improbable that the villi of the large intestine arise after the manner of those of the small intestine, as separate growths along the tops of the folds. Additional villi arise as separate growths between those villi already formed, not being preceded by folds.

The first glands appear as knob-like protuberances of the epithelium into the underlying mesenchyma. Additional glands develop by a splitting, from below upward, of those already formed. Villi reach their maximum height in embryos between 110 mm. and 140 mm. in length. From this time on they gradually become smaller in size. Remnants of them persist as folds which form an irregular network in between the gland openings. They are entirely gone at birth. In the vermiform process villi and glands develop, and the villi disappear at the same time and in the same manner as those of the ascending colon. Enlarged and cystic glands are found in the vermiform process and cecum. Many of them become detached from the surface epithelium and are then entirely surrounded by connective tissue. They later disappear by degeneration and absorption. Lymphoid nodules are found in the mucosa of the rectum. They are in many ways similar to those found in the vermiform process, but differ from them in that they are not so deeply seated in the tunica propria, are seldom entirely detached from the surface epithelium and disappear not by degeneration and absorption, but by breaking through into the intestinal lumen. Distention of the large intestine, due to the accumulation of meconium, brings about marked changes in the form of the mucosa. It reduces its thickness, broadens and shortens both villi and glands and causes them to become spread apart.

American Journal of Urology, New York

January, IX, No. 1, pp. 1-56

8 Clinical Significance of Urethroscopy. F. M. Oberlander, Dresden, Germany.
9 *Diagnosis of Hemorrhage in Hydronephrosis. P. Marchais, Nevers, France.
10 *Neoplasms of the Renal Pelvis and Ureter; Report of a Case. C. G. Cumston, Boston.

11 Double Congenital Stricture of Left Ureter with Movable Calculus Between Points of Constriction. W. E. Lower, Cleveland.
12 Sexual Impotency in Male. V. Blum, Vienna.

9. **Hemorrhage in Hydronephrosis.**—Machais points out that besides the already-known complications of hydronephrosis, there exists another, namely, hemorrhage occurring into the sac. This complication is not common and usually is the result of a trauma, a fact which does not exclude the occurrence of a urohematonephrosis of a malignant source. The symptomatology is not clear, and other than those instances in which a renal tumor decreases in volume after hematuria has taken place, it is hardly possible to recognize the nature of the contents. The diagnosis is difficult, and often is only made when the sac is incised, while the prognosis is serious and demands immediate operation, which should be nephrectomy when the functional condition of the fellow kidney is known.

10. **Neoplasms of Renal Pelvis.**—A male, aged 34 years, consulted Cumston for blood in his urine. About six months previously, and without any cause, he was seized in the middle of the forenoon with an imperative desire to micturate. To his surprise he found that he voided pure blood. After this the urine became less bloody and after a few days was quite clear again. About six weeks later the same phenomenon occurred, the urine clearing up in a few days. There was no pain at any time, but finally the hematuria became continuous, the urine being always tinted with blood. The right kidney was exposed. The organ presented at its power pole considerable enlargement, and the kidney was then split open so as to explore the pelvis and ascertain the nature of the enlargement. The pelvis was somewhat distended by a papillomatous growth, which to a certain extent occluded the ureteral orifice. During manipulation there was pretty free hemorrhage from the neoplasm. The renal enlargement proved to be a retention cyst occupying about two-thirds of the organ. Nephrectomy was easily done. Drainage of the renal space. Patient returned to bed in good condition. Recovery uneventful. Microscopically the neoplasm proved to be a papilloma, but in none of the sections could any trace of malignant transformation be detected. Three months after the operation the patient was in excellent health.

Boston Medical and Surgical Journal

January 23, CLXVIII, No. 4, pp. 109-148

13 Work of Massachusetts State Board of Health in Investigation of Infantile Paralysis. R. W. Lovett, Boston.
14 *Shock; Theories and Experimental Data to Date. E. H. Risley, Boston.
15 *Control of Ophthalmia Neonatorum in Massachusetts and Improvement of Existing Conditions. F. E. Cheney, Boston.
16 *Typhus Fever (Brill's Disease) at Massachusetts General Hospital in Ten Years (Oct. 1, 1902, to Oct. 1, 1912). R. I. Lee, Boston.
17 Anatomic Explanation of Many Cases of Weak or Painful Backs, as Well as of Many of the Leg Paralyses. J. E. Goldthwait, Boston.

14. **Shock.**—The summary of the evidence in regard to the causative factors in the complex condition of shock are stated by Risley as follows: "Shock is a condition of lowered vital resistance produced by varying factors, such as fear, injury or infection, of varying degrees. It is not possible to determine in a given case what physiologic function is first disturbed or what the exact sequence of pathologic changes are, but it does involve in its progress disturbance of the respiratory center followed by disturbance of the oxygen-carbon dioxid equilibrium, lowering of body heat and depression of vasomotor tone resulting in a final paralysis or exhaustion of vasomotor activity, failure of respiration, cardiac failure and death."

15. **Control of Ophthalmia Neonatorum.**—The following suggestions are made by Cheney: 1. The sending of a "special notice to parents to prevent blindness in children,"—similar to the notice sent out by the Boston Board of Health—by every board of health in the state on the receipt of birth notices. A law requiring the sending out of such a notice would be an extremely valuable measure. 2. A law requiring all cases of ophthalmia neonatorum to be placed under the care of an oculist or at least the supervision of an oculist within a certain time after the symptoms of the disease are first noticed. 3. Printed matter, as to the recognition of the disease, immediate care and protection of the eyes, laws relating to the disease, etc. (the information now furnished by the state organizations with some addition) sent to all doctors, nurses, and midwives, at regular and frequent intervals, and over a long period of time. And, 4, while the use of a 1 per cent. solution of nitrate of silver cannot be regarded as objectionable, a more universal prophylaxis against this disease would probably result if the use of a less irritating remedy were more generally recommended and encouraged.

16. **Typhus Fever.**—In the past ten years typhus fever in a mild and sporadic form has constantly been present in Boston and its vicinity as seen by the records of the Massachusetts General Hospital. It occurs, according to the Massachusetts General Hospital statistics, in about the ratio of one case of typhus fever to forty-seven cases of typhoid. As the diagnosis has to be made on clinical signs only, Lee suggests that it is possible that there are other cases in this series which cannot now be definitely diagnosticated. There occurred in the hospital series another group of cases which roughly simulated typhus in everything but the presence of the rash, which cannot now be classified. The clinical course and laboratory findings in typhus are so distinctive that there is little trouble in making the diagnosis in typical cases. Lee's study throws no light on the epidemiology of typhus, except that the occurrence of the disease in persons of Russian nativity strongly suggests that the disease was originally imported from Russia. This study also emphasizes the importance of blood cultures, inasmuch as there were cases of typhoid with a negative Widal in which the positive diagnosis was only made by blood cultures. Moreover, the diagnosis of paratyphoid fever in this series was made possible by blood cultures alone in the majority of instances.

Colorado Medicine, Denver

January, X, No. 1, pp. 1-32

18 Constipation; Medical Standpoint. J. E. Peairs, Pueblo.
19 Surgical Treatment of Constipation. C. B. Lyman, Denver.
20 Eyestrain in the Tuberculous. O. Orendorff, Canon City.
21 Ureteral Obstruction or Beginning of Intermittent Hydronephrosis. O. S. Fowler, Denver.

Georgia Medical Association Journal, Augusta

January, II, No. 9, pp. 281-312

22 Cholecystitis as Complication of Pellagra. H. F. Harris, Atlanta.
23 Clinical Manifestations of Uremia. R. Lattimore, Savannah.
24 Intestinal Obstruction, with Report of Experimental Work. J. L. Campbell, Atlanta.
25 So-Called Neurasthenia; Some Factors Causative and Curative. H. Crenshaw, Atlanta.

Journal of Infectious Diseases, Chicago

January, XII, No. 1, pp. 1-126

26 *Occurrence of an Isolated Antibody in Cerebrospinal Fluid. L. Hektoen, Chicago.
27 *Laboratory Diagnosis of Glanders. E. M. Wade, Boston.
28 Two Lincoln (Nebraska) Typhoid Epidemics of 1911 and 1912. H. H. Waite, Lincoln, Neb.
29 Studies on Virus of Hog Cholera. W. E. King and F. W. Baeslack, Detroit.
30 *Bacillus from Spontaneous Abscesses in Rabbits and Its Relation to Influenza Bacillus. D. J. Davis, Chicago.
31 General Gonococcus Infection in Male Child Without Evidence of Urethritis. M. Nicoll, Jr., and M. A. Wilson, New York.
32 *Cultivation of Treponema Pallidum (Spirochaeta Pallida). F. W. Baeslack, Detroit.
33 *Experiments in Vital Staining of Tubercles. L. M. De Witt, Chicago.
34 Gonococcus. C. C. Warden, Detroit.
35 Fixed Hog Cholera Virus. J. Reichel, Glenolden, Pa.
36 *Origin and Action of Hemolytic Complement. G. F. Dick, Chicago.

26. **Isolated Antibody in Cerebrospinal Fluid.**—The cerebrospinal fluids used in Hektoen's experiments were obtained without any admixture whatsoever of blood and they appeared absolutely clear. In no case were there any inflammatory or other changes in the membranes and other structures of the central nervous system. He found that in mixtures of normal and immune dog-serum and rat corpuscles, the replacement of the salt solution with cerebrospinal fluid of normal dogs in no way diminishes the agglutinative action of the serum. He con-

cludes, therefore, that the cerebrospinal fluid of dogs, whether normal or immunized with rat blood, does not inhibit the agglutinative action of dog-serum on rat corpuscles; that the opsonic effect of cerebrospinal fluid of dogs injected with rat blood is due to a specific, thermostable opsonic substance, seemingly identical with that in the blood and lymph, this being the only antibody demonstrable in the cerebrospinal fluid of dogs so immunized; and finally that this opsonin makes its way into the fluid after passive immunization. These results, in his opinion, indicate that opsonin can occur as a distinct substance and that its presence in the cerebrospinal fluid is the outcome of some form of selective process.

27. **Laboratory Diagnosis of Glanders.**—The diagnosis of glanders by the complement-fixation test supplemented by the agglutination test on all negative serums, Wade believes, is the quickest and most reliable test at the present time. Glanders antigen prepared without shaking but filtered through a Berkefeld candle gives reliable results and yields a more stable product. Normal horse-serum varies widely in its agglutinating power, therefore a weak positive should be considered in conjunction with the complement-fixation test or with clinical symptoms. Antigens and agglutination fluids should be prepared from several strains of *B. mallei*. While a positive result from guinea-pig inoculation is conclusive evidence of the presence of glanders, failure of the pigs to develop lesions is not proof of its absence.

30. **Spontaneous Abscesses in Rabbits.**—For several years past, and especially during the last year, there have come under Davis' observation many rabbits with abscesses with certain rather characteristic features. Interest in these abscesses was aroused because a pleomorphic bacillus having some features in common with organisms of the influenza group was found in the pus, usually pure in all cases. Inasmuch as pathogenic hemophilic bacilli have never been found in animals other than man, Davis studied this bacillus somewhat minutely. The results of his findings may be summarized as follows: Spontaneous subcutaneous abscesses in rabbits are caused by a definite bacillus for which all of Koch's postulates have been fulfilled. At times the bacillus produces acute fatal infections in animals following bites. Bites or scratches are probably the common mode of infection. The bacillus is pleomorphic, tends to form threads and non-branching filaments, but is not strictly hemophilic, nor does it manifest the phenomenon of symbiosis in cultures. Davis says it should not be classed in the influenza group. This bacillus is identical culturally and in many respects morphologically with a bacillus which caused an epidemic of pleuropneumonia in rabbits. In small doses the latter produces subcutaneous abscesses similar in every respect to those caused by the abscess bacillus. The abscess bacillus by intratracheal injection may cause pneumonia. Agglutinins have not been noted in the serums of infected animals.

32. **Cultivation of Treponema Pallidum.**—Although Noguchi found it necessary to begin the cultivation of the *Treponema pallidum* in heated horse-serum plus tissue, Baeslack says the organism can be grown in coagulated horse-serum, either by inserting a small piece of tissue containing the organisms, or by grinding up the tissue, diluting it with broth and making inoculations into this medium by means of a capillary pipet. To inoculate with tissue it is best to use it in as fresh condition as possible. The tissue is divided into small pieces, the size of a split pea. With a sterile platinum wire the tissue is placed deep in the medium between the wall of the tube and the medium. The introduction of air bubbles must be avoided. The consistency of the mediums permits this method of inoculation without tearing. It has not been found necessary to place neutral oil on the surface of the mediums. The inoculated tubes are placed in a desiccator containing pyrogallic acid, and the desiccator is then exhausted and hydrogen passed through it until a test-tube held to the outlet tube contains hydrogen. Suction is again applied to produce a vacuum in the desiccator and a strong solution of potassium hydroxid is run in through the outlet tube.

The growing *Treponema pallidum* may be observed to radiate from the tissue implanted in the coagulated horse-serum in the form of a very faint cloud. The colonies are not sharply defined, nor distinct in their outline. The object of implanting the tissue near the wall of the test-tube is to permit the growing treponema to penetrate into the medium. Thus one is enabled to obtain pure cultures. The cultures growing in the ascitic-agar plus tissue grow deeply at first and gradually the growth extends in a fine haze to within an inch of the surface of the medium. Baeslack has succeeded in growing one strain pure for four generations and this strain was grown both in serum-water plus tissue and oil; ascitic-agar plus tissue and oil in a hydrogen atmosphere as well as in horse-serum mediums. He has also succeeded in obtaining a typical syphilitic lesion in the testis of one of two rabbits inoculated. The lesion was a circumscribed orchitis, not broken through the skin. This lesion, which was noticed five weeks after inoculation, was about the size of a cherry-stone, and showed numerous actively motile spirochetes in the dark field. This culture was devoid of any unpleasant odor, whether grown in coagulated horse-serum, serum-agar, serum-water plus tissue, or ascitic-agar plus tissue. Cultivation experiments with the other strains are in progress.

33. **Experiments in Vital Staining of Tubercles.**—Among the dyes so far tested by De Witt, trypan blue, trypan red, isamine blue, pyrrol blue, Ehrlich's rectified methylene-blue, medicinally pure methylene-blue, methylene-blue of the U. S. Pharmacopeia, new methylene-blue N, new methylene-blue GG, and to some extent neutral red and pyronin have been found to penetrate tubercles in guinea-pigs. Basic fuchsin, crystal violet and the other new methylene-blues are now being tested and a report will follow later. The dyes above mentioned are well borne for a long period, if the dose of the methylene-blues, basic fuchsin and crystal violet is not too large. Almost any dose of the first four dyes mentioned is well borne. The individual bacillus itself is penetrated and well stained by all the methylene-blues, by basic fuchsin, and crystal violet, by erythrosin and the eosins; not so well by trypan blue, trypan red, isamine blue, pyrrol blue, pyronin and neutral red. Methylene-blue, bismarck brown and brilliant cresyl blue are the only dyes which have a possible bactericidal power over the organism, though many of the others seem to inhibit its growth in the test-tube. In the animal experiments, 1 per cent. water solutions of the dyes have been used in most of the experiments, although with the dyes which have been shown to be irritating in that concentration one-fourth of 1 per cent. and even one-tenth of 1 per cent. solutions have been employed. Most of the injections have been subcutaneous, but in some cases the dyes have been injected intraperitoneally.

In all cases guinea-pigs which had been inoculated subcutaneously with human tuberculosis were used. Sixteen tuberculous guinea-pigs were injected for longer or shorter periods with 1 per cent. aqueous solution of trypan blue, from 6 to 10 c.c. being given at each dose. This was always well borne and no local or general toxic or irritative effects were noticed in any of the animals, except that the pregnant pigs always aborted, and most of them died shortly after the abortion. In nearly every case, the smaller tubercles of lungs, liver and spleen have taken the stain and are usually sharply contrasted with the surrounding tissue, which is either unstained or less deeply stained than the tubercles. The larger necrotic areas so frequently present in the liver and spleen of the tuberculous guinea-pig take the stain with especial avidity. The large caseous and softened lymph-nodes always show a blue periphery and if the injections have been repeated a number of times the caseous and softened centers are also deep blue and often deep blue pus exudes from the tubercle for some weeks before death. Distinctly blue-stained tubercle bacilli have never been noted, either in this blue pus or in the smaller tubercles, although at times deeply blue stained granules are seen which appear to be in bacilli, and these may retain a blue stain to some extent even after the bacilli have been stained with carbol fuchsin. The staining of tubercle bacilli in the body with trypan blue has not, however, been satisfactorily proved.

36. **Origin and Action of Hemolytic Complement.**—The results of Dëck's investigation indicate that hemolytic complement is a proteolytic ferment which is either formed in the liver or is dependent on liver activity for its presence in the blood.

Journal-Lancet, Minneapolis, Minn.

January 15, XXXIII, No. 2, pp. 33-63

37 Cholelithiasis. W. D. Farrell, Aberdeen, S. Dak.
38 *Surgery of Biliary Tract. R. C. Dugan, Eyota, Minn.
39 *Vaccines and Vaccine Therapy. H. L. Ulrich, Minneapolis.
40 Tonsillitis and Adenoids in Their Relation to Other Diseases; Review of Two Hundred Cases. C. F. Lewis, Austin, Minn.
41 Tests for Examination of Milk. E. Klaveness, Sioux Falls, S. Dak.
42 Prophylaxis and Treatment of Eclampsia. R. T. La Vake, Minneapolis.

38 and 39. Abstracted in THE JOURNAL, Aug. 31, 1912, pp. 743 and 744.

Kansas Medical Society Journal, Kansas City

January, XIII, No. 1, pp. 1-42

43 Flat-Foot and Manner of Correction. S. A. Hammel, Kansas City.
44 Appendicitis. J. C. Shaw, Holton.
45 Psychotherapeutics. W. H. Young, Fredonia.
46 Physiology and Pathology of Puerperium. E. A. Reeves, Kansas City.
47 Differentiation of Symptoms Located in Epigastrium. E. E. Hubbard, Kansas City.

Kentucky Medical Journal, Bowling Green

January 15, XI, No. 2, pp. 55-88

48 Biliary Drainage. C. B. Spalding, Louisville.
49 Some Points in Diagnosis and Removal of Malignant Conditions of Breast. A. D. Willmoth, Louisville.
50 Acute Abscess of Middle Ear. W. C. White, Louisville.
51 Four Cases of Appendicitis Associated with Foreign Bodies (Coal, Grape-Seed, Oxyuris, Bismuth). J. W. Price, Louisville.
52 Uterine Myoma (18½ pounds) and Gall-Stones (1,150). J. R. Wathen, Louisville.
53 *Unusual Gestation. J. K. Freeman, Louisville.
54 Typhoid Carriers. A. Dixon, Henderson.
55 Nephritis. W. A. McKenney, Falmouth.
56 Treatment of Typhoid. A. E. Ferguson, Austin.
57 Conservation of Health. W. L. Mosby, Bardwell.
58 *Case of Laryngeal Diphtheria. J. S. Greenwell, New Haven.

53. **Unusual Gestation.**—About 400 days after both tubes, one entire ovary and the greater part of the other had been removed by Freeman from a woman, 20 years of age, she gave birth to a normal child. He believes that this case should be classed among the anomalies and curiosities of medicine.

58. **Laryngeal Diphtheria.**—In this case 48,000 units of diphtheria antitoxin were given inside of seven days, 8,000 units being given on the first day and 5,000 units in each of the next six days. The patient recovered.

Lancet-Clinic, Cincinnati

January 5, CIX, No. 1, pp. 1-26

59 Fat Hernia. J. Ransohoff, Cincinnati.
60 Elements of Abnormality and Perversion of Sexual Function. D. C. McMurtrie, New York.
61 Membranes and Membrane Formation in Nose and Throat. O. M. Rott, Piqua, Ohio.
62 Gangrene of Bowel from Non-Penetrating Bullet Wound. J. F. Baldwin, Columbus, Ohio.

January 11, CIX, No. 2, pp. 27-52

63 Address to First Councillor District of Ohio (To be continued). W. A. Lane, London.
64 Gymnasium. I. O. Allen, Metamora, Ind.

January 18, CIX, No. 3, pp. 53-86

65 Address to First Councillor District of Ohio (Concluded). W. A. Lane, London, England.
66 Value of Blood-Clot in Operations for Acute and Chronic Mastoiditis. C. R. Holmes, Cincinnati.
67 Research Society and Medical School. H. M. Knower, Cincinnati.

Missouri State Medical Association Journal, St. Louis

January, IX, No. 7, pp. 205-252

68 The Deaf Child. M. A. Goldstein, St. Louis.
69 Case of Deafness. J. T. Moss, St. Louis.
70 *Defects Caused by Nasal Obstruction. W. E. Sauer, St. Louis.
71 Adenoids. E. T. Senseney, St. Louis.
72 Speech Defects. C. A. Gundelach, St. Louis.
73 General Consideration and Classification of Mentally Defective Child. S. I. Schwab, St. Louis.
74 Relation of Crippled Child to Community from Orthopedic Standpoint. N. Allison, St. Louis.
75 Special Schools for Crippled Children. J. C. Stimson, St. Louis.
76 Prevention of Blindness. M. H. Post, St. Louis.
77 Heredity of Blindness. C. Loeb, St. Louis.
78 Training of Blind Child. S. M. Green, St. Louis.
79 Relation of Defective Eyesight to Backwardness in Children. J. Green, St. Louis.

70. Abstracted in THE JOURNAL, July 6, 1912, p. 58.

Medical Record, New York

January 18, LXXXIII, No. 3, pp. 93-138

80 Some Problems of Nursing: Plea for Grading. H. D. Chapin, New York.
81 Radium and Thorium-X Therapy. C. Von Noorden, Vienna.
82 Prognostic Value of Rinné, Weber and Schwaback Tests. A. B. Bennett, Washington, D. C.
83 Atypical Children in Dr. Groszmann's School from Standpoint of Neurologist. M. Neustaedter, New York.
84 Beauty Doctoring. H. Greeley, Brooklyn.
85 Three Important "Don'ts" in Bone Plating. G. P. Coopernail, Bedford, N. Y.

January 25, LXXXIII, No. 4, pp. 139-184

86 Work and Needs of Academy of Medicine. W. M. Polk, New York.
87 *Action of Lactic Acid Bacilli on Percentage of Glucose in Urine in Diabetics. P. Horowitz, New York.
88 Gonorrheal Arthritis in Arthritic Subjects. J. Dardel, Savoie, France.
89 Sanatorium or Home? L. Rosenberg, Bedford Hills, N. Y.
90 *Influence of Sodium Chlorid on Hydrochloric Acid Secretion by Stomach. A. L. Benedict, Buffalo.
91 Bibliographic Style in Medical Literature. F. Place, New York.

87. **Action of Lactic Acid Bacilli on Percentage of Glucose in Urine in Diabetics.**—By correcting and curing the auto-intoxication, Horowitz says, one can remove the irritating influences on the sugar-regulating apparatus. *B. bulgaricus* destroys putrefaction and so overcomes the auto-intoxication; the bacillus changes the reaction of the intestinal tract from an alkaline to an acid condition; carbohydrate digestion is inhibited or is rather very much slower in the presence of this lactic acid; by thus lengthening the time of carbohydrate digestion only small amounts of sugar are formed and absorbed; permitting only small amounts to be formed and absorbed increased gradually the tolerance for carbohydrates until a normal tolerance is established. While it is agreed that in cases that have come to autopsy, there are changes in the pancreas especially in the islands of Langerhans, and that these changes are probably present in all cases of diabetes, with perhaps irritation and changes in the suprarenals, thyroid, nervous system, and hypophysis, still these changes are also caused, by auto-intoxication. In cases in which there is no indican in the urine and no auto-intoxication definite causative factors usually produce the glycosuria as in thyroidectomy, ether narcosis with a probable parenchymatous degeneration of the liver, etc. In the majority of cases the indican output is in close relation to that of the sugar. In a series of tests made by Horowitz on starch digestion by pancreatic juice, both that of the dog and man, and carried out for a period of several weeks, he found that the digestion of the starch goes on very much slower in the presence of the *B. bulgaricus* than when pancreatic juice alone was used. The bacillus generates free lactic acid, and in order to see whether this bacillus alone or the acid it generates interferes with the digestion, a solution of lactic acid of similar strength to that present in the culture was used with the same result as to the starch digestion. In other words, the Bulgarian bacillus generates the free lactic acid, and it is this acid condition of the bowels that interferes with the rapidity of the starch digestion.

90. **Influence of Sodium Chlorid on Hydrochloric Acid Secretion by Stomach.**—Benedict states that there is no more reason to expect a cure of hypochlorhydria from administering salt than of Addison's disease from administering adrenalin, or of leanness from administering fat. In many cases of hypochlorhydria, a definite atrophy of the gastric tubules exists. In others, there is a general failure of glandular functional capacity or a failure of innervation. The presence of an abundance of available raw material cannot, of course, insure its utilization. But just as there are cases of anemia in which the blood will recuperate its hemoglobin if iron is furnished, and cases of leanness in which the mere increase of fat or of food in general will afford relief, so there are occasional cases of hypochlorhydria in which the moderate, rational increase of salt, along with other appropriate dietetic and hygienic measures, will facilitate the reestablishment of an adequate HCl secretion.

Military Surgeon, Washington, D. C.

January, XXXII, No. 1, pp. 1-143

92 Medical Department of U. S. Army in Civil War: Pope's Virginia Campaign. L. C. Duncan, U. S. Army.
93 Immunity Through Tuberculosis Infection. G. E. Bushnell, U. S. Army.
94 Preparedness of Medical Department of Army in Matter of Field Medical Supplies. F. A. Winter, U. S. Army.
95 Advantages Accruing to National Guard from Tours of Duty with Regular Establishment Like That at Sparta, Wis., in 1912. C. S. Young, U. S. Army.
96 Problems of National Guard Regimental Surgeon on Maneuver Campaign. C. Phillips, U. S. Army.
97 Tour of Duty at Fort Riley and Its Lessons. B. M. Linnell, U. S. Army.
98 Plea for More Camps of Instruction, Under Government Supervision, for Officers of Organized Militia. H. H. Dean, U. S. Army.
99 Case of Post-Traumatic "Insanity." H. Butts, U. S. Navy.
100 Modern Treatment of Acute Appendicitis. A. W. Williams, U. S. Army.
101 Prophylaxis of Syphilis and Practical Points on Its Treatment Navy.
103 Simple Apparatus and Technic for Intravenous Injection of Salvarsan. A. Mueller, U. S. Army.
104 Socks for Soldiers. H. W. Yemans, U. S. Army.

New York Medical Journal

January 25, XCVII, No. 4, pp. 165-216

105 Tuberculosis and Other Diseases in Schools and Colleges. S. A. Knopf, New York.
106 Sex Ethics; A Medical Orientation. W. B. Konkle, Montoursville, Pa.
107 Value of Pertussis Vaccine. G. D. Scott, New York.
108 Malignant Growths. R. H. Boggs, Pittsburgh.
109 Education of Public in Personal Hygiene. R. S. Morton, New York.
110 Abdominal Rigidity. L. M. Kann, New York.
111 Concomitant Convergent Squint. D. F. Harbridge, Philadelphia.
112 Crippled Children in English Public Schools. D. C. McMurtrie, New York.
113 Incipient Pulmonary Tuberculosis. S. G. Ehrenreich, New York.
114 Alkalies and Hyperchlorhydria. P. C. Tupper, New York.

Northwest Medicine, Seattle, Wash.

January, V, No. 1, pp. 1-28

115 *Relationship of Clinical and Pathologic Aspects of Exophthalmic Goiter. L. B. Wilson, Rochester, Minn.
116 Operative Treatment of Exophthalmic Goiter. E. O. Jones, Seattle, Wash.
117 Goiter as It Exists in Weber County. J. W. Pidcock, Ogden, Utah.
118 Surgical Treatment of Carcinoma of Lower Lip. T. W. Huntington, San Francisco.
119 Plea for Early Recognition of Acute Intestinal Obstruction. C. G. Fletcher, North Yakima, Wash.
120 Case of Absence of Vagina and Its Reconstruction. E. F. Tucker, Portland, Ore.

115. **Clinical and Pathologic Aspects of Goiter.**—The histologic conditions met with in thyroid glands are classified by Wilson as follows:

I. Embryonic (undeveloped) thyroid.
II. Normal (resting) thyroid.
III. Vascular changes.
  1. Hyperemia.
  2. Hemorrhage (including resulting cyst formation).
IV. Inflammations.
V. Progressive changes.
  1. Hypertrophy (functional, with hyperemia).
  2. Hyperplasia ("exophthalmic" goiter).
  3. Adenomatosis (multiplication of acini without encapsulation).
VI. Retrogressive changes.
  1. Retention of secretion (colloid goiter).
  2. Atrophy (of parenchyma).
  3. Degenerations.
    (a) Colloid (of parenchyma and stroma).
    (b) Hyalin.
    (c) Amyloid.
    (d) Calcareous.
    (e) Cystic.
VII. Tumors.
  1. Benign.
    (a) Fetal adenomata (encapsulated).
    (b) Adult adenomata (encapsulated).
  2. Malignant.
    (a) Mesotheliomata.
    (b) Carcinomata.
    (c) Sarcomata.

The relationships of the above pathologic classification to clinical conditions in certain respects are indicated more clearly by the following broad general statements: The thyroid gland removed from a young patient in the early months of acute thyrotoxicosis (exophthalmic goiter) shows hypertrophy and hyperplasia of the parenchyma with a small amount of a thin and but slightly stainable secretion within the acini. The size of the gland and the distribution and degree of hyperplasia are proportionate to the intensity of the symptoms. The thyroid gland from a young patient, who has had acute thyrotoxicosis eight months to a year, shows a much less active hyperplasia and a much larger amount of a more dense and more stainable secretion in the acini throughout the gland. This pathologic picture corresponds to a period of reduction of the intensity of the toxic symptoms which Plummer has pointed out usually occurs in the latter half of the first year of acute Graves' disease.

The thyroid gland in a young patient, who has had acute Graves' disease for a year and one-half or more, usually shows at least three phases of pathologic change scattered irregularly throughout the gland as follows: (a) An active parenchymatous hyperplasia like that described in No. 1; (b) a reduced parenchymatous hyperplasia with a dense stainable secretion in the acini like that described in No. 2; and (c) areas in which the parenchyma cells are atrophied or desquamated from the walls of the acini, which are distended with intensely staining colloid. The older the patient at the time of onset of acute thyrotoxicosis, the more quickly do colloid changes appear in the thyroid. The thyroid from a patient who has somewhat rapidly developed a typical picture of exophthalmic goiter with exophthalmos after years of simple goiter, presents a picture of advanced colloid change throughout most of the gland, but usually with thinned rather than with desquamated parenchyma and with scattered areas of somewhat actively functionating parenchyma which may be markedly hyperplastic. It is sometimes impossible to distinguish this pathologic condition from that described in No. 3. The thyroid gland from a patient who has had symptoms of thyrotoxicosis very slowly developing throughout a period of years with a predominance of cardiac symptoms and with little if any exophthalmos is usually found to present a histologic picture of (a) diffuse adenomatosis or (b) more usually, of encapsulated multiple adenomata, almost invariably of the fetal type. These cases, however, are not true exophthalmic goiter.

Ohio State Medical Journal, Columbus

January 15, IX, No. 1, pp. 1-52

121 Some Questions Concerning Medical Education. W. S. Thayer, Baltimore.
122 Our Last Views on Salvarsan. A. Ravogli, Cincinnati.
123 Relation of Teeth to Eyes. W. E. Bruner, Cleveland.
124 Chronic Bone Abscesses. J. Dickenson, Cleveland.
125 Water Purification. R. W. Pratt, Cleveland.

Oklahoma State Medical Association Journal, Muskogee

January, V, No. 8, pp. 339-391

126 Acute Lobar Pneumonia. E. F. Hayden, Tulsa.
127 Hemorrhoids. L. Watson, Oklahoma City.
128 Epidemic Cerebrospinal Meningitis. H. M. Williams, Wellston.
129 Intestinal Diseases of Children. C. Puckett, Pryor.
130 Copiopia. C. J. Lukens, Enid.
131 Ear Complications from Adenoids. H. C. Todd, Oklahoma City.
132 Intussusception in Eleven-Months-Old Child. W. E. Dicken, Oklahoma City.
133 Gangrene in Status Epilepticus; Death from Sapremia. E. A. Thurlow, Norman.
134 Unilateral Surgical Kidney with Pressure on Common Duct Causing Jaundice. C. von Wedel, Oklahoma City.

Pennsylvania Medical Journal, Athens

January, XVI, No. 4, pp. 253-336

135 Teaching of Ophthalmology in America. W. Reber, Philadelphia.
136 Sight Saving as National Movement. F. P. Lewis, Buffalo.
137 Trachoma in Its Relation to Blindness. C. P. Franklin, Philadelphia.
138 Effect of Artificial Light on Eyes and Some Means of Determining the Same. W. C. Posey, Philadelphia.
139 Prevention of Industrial Plant Injuries to Eye. W. W. [illegible], Pittsburgh.
140 Sociologic Aspects of Errors of Refraction. W. Z. [illegible], Philadelphia.
141 Ophthalmia Neonatorum and Its Relation to Blindness. E. H. Heckel, Pittsburgh.
142 Dynamite-Cap Injuries to Eyes. J. B. Corser, Scranton.

143 Midwives in Pennsylvania. B. F. Royer, Harrisburg.
144 Restoring Mobility After Bony Ankylosis of Joints. R. Tunstall Taylor, Baltimore.
145 Surgical Treatment of Complete Prolapse of Uterus. R. C. Norris, Philadelphia.
146 Massage and Massage Operators in City of Pittsburgh. T. Diller, Pittsburgh.

United States Naval Medical Bulletin, Washington, D. C.

January, VII, No. 1, pp. 1-164

147 Rotch Method of Roentgenographic Age Determination. H. W. Smith, U. S. Navy.
148 Physical Training in United States Naval Service. J. A. Murphy, U. S. Navy.
149 Present Status of Color Blindness. G. B. Trimble, U. S. Navy.
150 Organization and Finances of Bureau of Medicine and Surgery. W. S. Gibson, U. S. Navy.
151 Naval Hospital for Tuberculosis, Las Animas, Colo. P. Leach, U. S. Navy.
152 Hospital Ships for Fishing Fleets. I. L. Neilson, U. S. Navy.
153 Prevention of Spread of Infectious Diseases on Shipboard. E. R. Stitt, U. S. Navy.
154 Treatment of Insane in Navy. G. A. Riker, U. S. Navy.
155 Intestinal Parasites and Diseases Found in Guam. C. P. Kindleberger, U. S. Navy.
156 *Easy Method for Cultivation of Gonococcus. G. F. Clark, U. S. Navy.
157 Some Statistical Observations Concerning Tattooing as Seen by Recruiting Surgeon. A. Farenholt, U. S. Navy.
158 Height and Weight, at Different Ages, of Applicants at Recruiting Station, Cleveland, Ohio. J. E. Gill, U. S. Navy.
159 Apparatus for Obtaining Blood from Vein or from Heart of an Animal. G. F. Clark, U. S. Navy.
160 Diet List for Use on Board Ship. B. F. Jenness, U. S. Navy.
161 Clinical Manifestations of Pityriasis Rosea. W. D. Owens, U. S. Navy.
162 Flat-Foot. B. Elmore, U. S. Navy.

156. **Cultivation of Gonococcus.**—Thalmann's medium, to which fresh human blood-serum has been added, is used by Clark. Thalmann's medium is prepared as follows: Five hundred grams of lean, finely minced beef are placed in 1,000 c.c. of distilled water and allowed to stand over night in an ice box. It is then filtered and the filtrate made up to 1,000 c.c. with distilled water. To 100 c.c. of the beef juice add 1½ grams of agar and boil for fifteen minutes. Then add 2 grams of glucose and bring the reaction to plus 0.6 by addition of NaOH. Tube, sterilize, slant and incubate over night. No peptone or salt is required. To each tube of the medium add 4 to 5 drops of fresh, sterile human blood-serum. After washing the glans penis with alcohol and wiping off any secretion at the meatus, a drop or two of the pus is expressed from the meatus and inoculated on the medium. It is best to incline the test-tube prior to inoculation, so that the serum will flow over the entire surface. The pus should be evenly spread. In sixteen hours the colonies of gonococci can be readily seen as small white points. Toward the bottom of the tube the colonies are larger, sometimes almost as large as staphylococci when grown on ordinary mediums. By fishing a small colony a pure culture can be obtained. In order to prove the presence of the gonococcus, make a Gram's stain, and transfer from the subculture to ordinary agar and Loeffler's serum. No growth should be obtained from either.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

January, X, No. 109, pp. 1-48

1 Epidemic Catarrhal Jaundice. L. Guthrie.
2 *Inclusion Bodies in Scarlet Fever. J. Granger and C. K. Pole.
3 Hedonal Anesthesia: Its Use in Children. L. E. Barrington-Ward.

2. **Inclusion Bodies in Scarlet Fever.**—A very extensive study of this subject was made by the authors. Their conclusions are summarized as follows: Except in the extremely mild toxic type of scarlet fever, Döhle's inclusion bodies will probably be found in every true case of scarlet fever during the first four days of illness. The absence of the bodies practically excludes scarlet fever. The bodies are present in almost every case up to the fourth day, after which they appear with lessening frequency and are absent in most cases after the eighth day, though in some few cases they may be found as late as the third or fourth week. The bodies are present in quite a large proportion of cases of diphtheria, measles and tonsillitis. Therefore the presence or absence of the bodies is of no use in making a differential diagnosis between these diseases and scarlet fever. The bodies are found in most diseases caused by ordinary pyogenic organisms especially if streptococci are present. The bodies are absent in toxic rashes. It is impossible to diagnose scarlet fever from film examination alone.

British Medical Journal, London

January 11, I, No. 2715, pp. 53-100

4 History and Nature of Certain Specimens Alleged to Have Been Obtained at Post-Mortem Examination of Napoleon the Great. A. Keith.
5 Insect Porters of Bacterial Infections. C. J. Martin.
6 Medicine and Liberty. W. Gordon.
7 Salvarsan in Pernicious Anemia. E. F. Maynard.

Journal of Laryngology, Rhinology and Otology, London

January, XXVIII, No. 1, pp. 1-56

8 Serous Otitic Meningitis, with Septic Thrombosis of Left Lateral Sinus and Internal Jugular Vein, Successfully Treated by Operation. E. M. Stockdale.
9 Diffuse Osteomyelitis from Nasal Sinus Suppuration. D. McKenzie.
10 Electrodiagnosis in Diseases of Labyrinth. E. Junca.
11 Diagnosis, Prognosis and Treatment of Cervical Abscesses of Aural Origin. D. de Carli.

Journal of Obstetrics and Gynecology of British Empire, London

November, XXII, No. 5, pp. 345-416

12 Pernicious Vomiting of Pregnancy. J. W. Williams, Baltimore.
13 Le Fort's Operation for Prolapse, with Account of Eight Cases. J. Wyatt.
14 Elephantiasis of Vulva; Cesarean Section and Panhysterectomy, with Recovery of Mother and Child. V. B. Green-Armytage.
15 Pre-Eclamptic Coma; Death; Post-Mortem Cesarean Section; Living Child. V. B. Green-Armytage.

Journal of Tropical Medicine and Hygiene, London

January 1, XVI, No. 1, pp. 1-16

16 Some Experimental Facts Re Kala-Azar (Indian). R. Row.

Lancet, London

January 11, I, No. 4663, pp. 81-136

17 Insect Porters of Bacterial Infection. C. J. Martin.
18 *Two Cases of Colloid Tumor of Third Ventricle, Causing Death. A. J. Hall.
19 Case of Pneumonotomy for Foreign Body. T. H. Kellock.
20 Cecotomy for Removal of Hairpin Impacted in Ascending Colon. L. McGavin.
21 Myeloid Leukemia in Child with Blood-Picture of So-Called Megaloblastic Degeneration. C. H. Treadgold.
22 *Alleged Diagnostic Value of Provocative Injection of Old Tuberculin in Suspected "Closed" Pulmonary Tuberculosis. E. E. A. T. Rigg.

18. **Colloid Tumor of Third Ventricle.** Hall reports on two specimens examined by him, and reviews seven other cases, two of which have never been reported, the remaining five having comprised a part of Weisenburg's report. Hall's first specimen was obtained from a man about middle age, who was found lying unconscious in the street. On admission to the hospital the patient was comatose. Left pupil larger than right; knee-jerks absent; temperature 98.7 F., rising to 105.4 F. before death. Divergent squint developed and shortly before death a considerable amount of clear fluid was discharged from the nose. Death took place a few hours after admission. On cutting through the corpus callosum and fornix a globular semi-translucent tumor was seen lying in the anterior part of the third ventricle. It was about the size of a small toy marble, smooth, soft and gelatinous, becoming after fixing in formaldehyd solution quite firm and hard. The tumor lay free in the cavity of the third ventricle, except where it was attached to the anterior part of the right choroid plexus by a narrow band of fibrous tissue. It had apparently pushed down the front part of the velum interpositum, so that the right vena galeni ran under the pedicle of the tumor and reappeared about half-way down the right side of the tumor. The two lateral walls of the third ventricle—that is, the anterior ends of the optic thalami—could be seen to be hollowed out by the convex surface of the tumor, as was well shown when the tumor was lifted from its bed. The pedicle spread out into a fibrous capsule covering the tumor, and outside this some villi of the choroid plexus were seen in front. The lateral ventricles were somewhat dilated, the right rather more than the left.

The second patient was a woman, aged 18 years. She had suffered from nocturnal enuresis since childhood. There had been no other illness until six months previously, when recurring attacks of headache began. These did not prevent her from doing her work until the day before her death, when the headache was so severe that she had to leave work and go home to bed. The headache improved and she slept well. Next morning, when seen by her friends she still complained of headache and stayed in bed. At midday when they went to her room they found her lying dead in bed. On removing the brain about 2 ounces of clear fluid escaped from the cut infundibulum and excess of fluid was found in the lateral ventricles. A tumor corresponding closely in size, shape, position and general appearance to that described in the previous case was found. In the fresh state it was semi-diffluent and like a bag of soft jelly, but after being preserved in formaldehyd solution it became firm and hard. It was attached, like the previous specimen, to the right choroid plexus at its anterior end and rested on the velum interpositum. When cut into after hardening both tumors had a firm, semi-translucent, almost cartilaginous consistence and a homogeneous structure.

Microscopic sections were difficult to prepare on account of the brittleness produced by the reagents used. The bulk of the tumor consisted of a structureless hyalin matrix containing at wide intervals epithelial cells in various stages of degeneration. These might be single or in groups of two or three, or, especially near the surface, in clusters of larger numbers. In the last case the cells were less degenerated and showed a more typical epithelial character; this was also true of the solitary cells nearer the surface. The similarity of the more central parts to degenerating hyalin cartilage was striking. In sections of the first case the surface of the tumor with its enclosing capsule was intact. Externally, several layers of well-formed fibrous tissue were seen. Immediately inside this and lying outside the hyalin central mass was a single layer of cubical epithelium, well defined and showing no marked degeneration.

22. **Old Tuberculin in Closed Pulmonary Tuberculosis.**—Sixty-one patients in whom no tubercle bacilli had ever been found were injected with old tuberculin by Rigg. He found, as so often happens, that injection of old tuberculin in established cases of pulmonary tuberculosis failed entirely to produce any one of the five elements of a tuberculin reaction; presumably the amboceptors usually referred to as "free" fixed the tuberculin; but by reason of their detachment from cells were unable to lead to the dissolution of the latter. It seems to Rigg that nothing can be hoped for from the provocative use of old tuberculin in the way of helping to detect cases of so-called "closed pulmonary tuberculosis."
of generalizations as to results. It seems clear that appropriate cases of tuberculosis are much assisted in their process of cure by the administration of tuberculin. But careful selection must be made of suitable cases and equally careful consideration must be given to questions of dosage and intervals of administration. The secret of success, both in the induction of auto-inoculation and in vaccine therapy is probably careful graduation of the dose. Both in the matter of physical exercise and in the use of tuberculin it is a question of dosage throughout, and "the little more, how much it is" may often be responsible for disastrous results where brilliant ones were hoped for.

Practitioner, London

January, XC, No. 1, pp. 1-380

23 *Bacteriology, Pathology and Research in Tuberculosis. T. J. Horder.
24 Ways in Which Tubercle Bacilli Enter and Spread in Body. J. W. Carr.
25 Diagnosis of Pulmonary Tuberculosis and Principles of Its Treatment in Early Stages. A. Latham.
26 *Roentgen Rays in Diagnosis of Lung Disease. D. Lawson.
27 General Treatment of Pulmonary Tuberculosis. R. D. Powell.
28 Sanatorium Treatment and After-Care of Cases of Pulmonary Tuberculosis. F. R. Walters.
29 *Home Treatment of Tuberculosis and Rules for Living. N. D. Bardswell.
30 Treatment of Pulmonary Tuberculosis by Graduated Rest and Exercise. M. Paterson.
31 Climatic Treatment of Tuberculosis. N. Wood.
32 Dietetic Treatment of Tuberculosis. C. Watson.
33 *Use and Abuse of Drugs in Tuberculosis. W. E. Dixon.
34 *Tuberculosis and Phosphorus Metabolism. J. Alcindor.
35 Pneumothorax Treatment of Pulmonary Tuberculosis. C. Lillingston.
36 Continuous Antiseptic Inhalation in Treatment of Pulmonary Tuberculosis. C. Muthu.
37 *Opsonic Method in Relation to Tuberculosis. L. Colebrook.
38 *Tuberculin and Tuberculosis. W. C. Wilkinson.
39 *Treatment of Tuberculosis at Torquay Tuberculin Dispensary. R. A. Bennett.
40 Surgical Treatment of Tuberculosis. A. P. Gould.
41 Tuberculous Diseases of Bones and Joints. R. Jones.
42 Use of Plaster-of-Paris in Mechanical Treatment of Tuberculous Disease of Spine. H. J. Gauvain.
43 *Trypsin Treatment of Surgical Tuberculosis. W. Baetzner.
44 Surgical Tuberculosis of Colon, Rectum and Anal Canal. C. G. Watson.
45 Tuberculosis of Stomach and Intestines. T. Thompson.
46 Urinary and Genito-Urinary Tuberculosis. E. H. Fenwick.
47 Tuberculosis of Larynx. St. C. Thomson.
48 Tuberculous Disease of Ear. W. Milligan.
49 Eye in Relation to Tuberculosis. A. W. Ormond.
50 Associations of Tuberculosis with Disorders of Nervous System. A. J. Whiting.
51 *Tuberculosis in Children. E. Pritchard.
52 Treatment of Localized Tuberculous Infections. N. Raw.
53 Rain-Bearing Winds and Prevalence of Tuberculosis. W. Gordon.
54 Tuberculosis in Ireland. J. Moore.
55 Education of Public in Relation to Prevention of Tuberculosis. T. D. Acland.
56 Public Health and Housing Problem. J. Glaister.
57 Public Health and Tuberculosis. J. Priestley.
58 Tuberculosis and Life Assurance. T. D. Lister.

23. **Bacteriology, Pathology and Research in Tuberculosis.**—In specific treatment, Horder says, the tissues may be educated to form useful antibodies by inducing auto-inoculation, or by the artificial introduction of one or other of the varieties of intracellular tuberculous toxin termed "tuberculin." Useful auto-inoculation, of an educative character, should enter into the régime of all treatment, whether carried out in sanatoriums or at home. Inoculation by tuberculin injections, or vaccine treatment, is at present in too early a stage of trial to admit

26. **Roentgen Rays in Diagnosis of Lung Disease.**—That consultant, says Lawson, who, in the diagnosis of a difficult and obscure lung condition, has not brought to his aid the service of the Roentgen rays, has failed alike in his duty to himself and to his patient. But, he continues, he who aims at employing Roentgen rays as a diagnostic agent in chest work must, as a preliminary measure, familiarize himself with the various shadows presented by a normal chest, in particular with those of the ribs, heart, aorta, scapula, spine, larger bronchi and those more or less vertical lines which, for want of a less controversial term, may here be referred to as the pleuropericardial lines. With these facts clearly before his mind, the physician possesses in Roentgen rays an instrument of the greatest value in assisting him confidently and accurately to determine those various pathologic conditions of the lungs and pleura, which are to be met with in medical practice.

29. **Home Treatment and Rules for Living.**—The patient with arrested or quiescent disease, Bardswell says, should have an intelligent appreciation of his condition and its attendant risks. There is nothing to be gained by allowing him to deceive himself on this point. This knowledge, however, should be only at the back of his mind, so to speak. Nothing is worse for all concerned than constant self-analysis and thinking about the disease. So long as a patient feels well, looks well and maintains his weight and general condition, he may safely assume that his progress is satisfactory.

33. **Use and Abuse of Drugs.**—It is a matter of common knowledge, Dixon says, that a patient suffering from phthisis who, for the first time, is placed under the charge of a medical practitioner, will, for a time at least, improve in health, no matter what drugs, vaccines or specialty of treatment may be employed. The beneficial result is due in this, as in many other diseases, to efficient nursing, to the regulation of food, exercise and sleep, and possibly to a more open-air life. If only this effect were clearly recognized, the number of "treatments" in vogue for this common disease might be diminished. For we are all more inclined to regard an improvement, in the patients under our control, as being the result of our interference with their physiologic functions through the agency of drugs, serums, vaccines, or other active treatment adopted, than of the improved conditions under which they are placed. General hygienic measures are of pri-

mary importance in treatment, and it is not until all the beneficial effects, which we know will ensue from these alone, have been exhausted, that we have any right to ascribe an effect, beneficent or otherwise, to a special treatment.

34. **Phosphorus Metabolism.**—The treatment of tuberculosis by means of large doses of the hypophosphites, Alcindor believes, constitutes a distinct accession to modern methods. The experience gained by him in practice among the poorer classes, despite inherent difficulties and drawbacks, indicated that its general application under better auspices would be attended with brilliant results; cases, which in the ordinary way would be treated at a sanatorium, yielded to a four or five months' treatment, without recourse in many instances to a radical change in the patient's life, which is a feature of sanatorium régime. With such a useful weapon in medical armamentarium, it is Alcindor's opinion that the hypophosphites constitute a reliable and efficient adjunct or alternative to sanatorium and tuberculin treatment.

37. **Opsonic Method in Tuberculosis.**—The opsonic control, Colebrook says, is first applied, in the case of phthisis, to determine whether or not such auto-inoculations from the seat of disease are habitually occurring, and whether, in consequence, the patient is requiring rest in bed, or may wisely be treated as an out-patient. It is further employed throughout the course of treatment to ascertain the optimum dose of tuberculin, and at intervals to regulate this afresh; and finally, as in the case of surgical tuberculosis, to determine at what point specific treatment may safely be abandoned. To this latter end, one may apply the procedure of purposive auto-inoculation by exercise or may simply watch, with the passage of time, the opsonic level which the patient maintains. No other method, having as its objective the investigation of the patient's immunity to tuberculosis, has yet shown itself capable of making valuable contributions to practice, and that such claims, as have already been advanced in connection with the opsonic method, may well endow it with a degree of utility proportional to the importance of the disease in question.

38. **Tuberculin and Tuberculosis.**—The extraordinary effect of tuberculin in arresting and preventing hemorrhage and the rarity of tuberculous meningitis in patients who have been treated completely with tuberculin, have impressed on Wilkinson the view that, properly used, tuberculin causes the lung to heal, and tends to prevent extension of the disease to near and distant parts. Accordingly, if there is evidence, such as a tuberculin reaction alone can give, that a tuberculous lesion exists somewhere, it is prudent and wise to render the lesion inert and harmless. By adopting this principle of action we may sometimes assist those who need no help, but at the same time we are offering assistance to all who need it. It is impossible to determine beforehand what may or may not happen, when there is a living enemy lying in ambush in the tissues. It is better to try and kill the enemy, even though we may wake him, rather than give him the opportunity of choosing his own method and hour of attack. There are many ways of using tuberculin, right ways and wrong ways. The chief virtue of small doses is that they can hardly do any harm. It is otherwise with the system of large doses. Undoubtedly, it is possible to do great harm with large doses, if they are not given in proper sequence and at proper intervals. In the specific treatment of pulmonary tuberculosis, the medical man must be able to distinguish the different stages of the disease by physical signs and symptoms. He must also have been trained to read correctly the temperature charts in their varieties and vicissitudes and he must master the methods of measuring and recording doses. The very progress of the doses, which vary in every case, can only be appreciated by a close and frequent study of a number of charts and records which may extend over eight months to a year. If tuberculin is to be used as the essential remedy for treating tuberculosis, and Wilkinson believes there is no better, more economical, and more effective method, tuberculin dispensaries must be established for this specific purpose. The system of tuberculin dispensaries is quite new, and is the evolved product of Wilkinson's experience with tuberculin in Australia. He places tuberculin dispensaries in the forefront as the best, cheapest and most effective means of dealing with tuberculosis among the poor, and the success of his tuberculin dispensary depends on the skilful use of tuberculin in diagnosis and in treatment.

39. **Dispensary Treatment by Tuberculin.**—For the last few years Bennett has used tuberculin, but always tentatively and always with a lively fear of its possible effects before him. He is convinced, however, that tuberculin is of the very highest value in the treatment of the disease—that every doctor who is engaged in the anticonsumption crusade should use it and that it should take its place with sanatoriums and isolation hospitals and the rest. It is of course impossible to expect that every patient with tuberculosis will obtain benefit from tuberculin. The individual comes into consideration here, just as he does in all other forms of medical treatment, but in the vast majority of cases, tuberculin will not disappoint, and if it does, the fault must be looked for in the manner of using it.

43. **Trypsin Treatment of Surgical Cases.**—The general conclusions drawn by Baetzner from his own abundant material, and from the experiences of others, which have been sufficiently extensive to permit of an opinion on a subject so comparatively new and difficult, are as follows: 1. There can be no doubt that injections of trypsin have a definite curative action on the processes of surgical, i. e., localized tuberculosis. 2. The action is directed selectively against the fungoid purulent masses, and at the same time it is instrumental in producing healthy granulations. 3. Although with the material used, the growth of the tubercle bacillus remained unimpaired, it is an indubitable fact that, in the course of the trypsin treatment, the tubercle bacilli disappeared entirely from local affections. 4. The treatment is simple and devoid of any danger. Even out-patient treatment has given full satisfaction. 5. A point of greatest importance is the selection of the proper preparations for injection. 6. Even previous to the local changes, a general improvement is observed to follow trypsin injections; lessening and even complete cessation of pain, discharge and night sweats, and, chiefly, a very marked improvement of appetite.

51. **Tuberculosis in Children.** The most important essentials in the prophylactic treatment of tuberculosis in children, according to Pritchard are: As far as infancy is concerned, the only satisfactory measure when the environment is known to be one of open infection is to remove the infant from the source of danger. As supplementary prophylactic measures, fresh air, the graduated cold bath and an ample and varied proteid diet are useful. For older children the one important measure, apart from the above, is to maintain their strength during the period of debility following measles, whooping-cough and chicken-pox, and to remove them to convalescent homes in the country. The treatment of established cases of tuberculosis in children is discussed from two points of view: first, from that of specific inoculation, and second, from that of medicinal and hygienic therapeusis. The tuberculin treatment, he says, has a definite though limited place in the curative treatment of tuberculosis in children; the most valuable expedients, however, are climatic, dietetic and general hygienic treatment. The prevention of intestinal intoxication is a factor of great importance, while of drugs, calx sulphurata, iodid of iron and creosote are the most valuable. In all cases of intestinal intoxication in children, Pritchard says, there is nothing which promotes the healthy function of the bowel so well as petroleum, given in the form of an emulsion and at comparatively short intervals. He gives it, as a rule, in combination with liquor pancreatis as a digestive, and calcium hypophosphite as a tonic, and orders it to be taken after each meal. For a child of 5 years of age, the prescription runs as follows:

		gm. or c.c.	
R	Liquoris pancreatis	66	♏ x
	Calcii hypophosphitis	06	gr. i
	Emulsionis Petrolei	4	5 i

After each meal.

Archives Générales de Médecine, Paris

December, XCI, No. 12, pp. 1061-1126

59 The Larynx in the Tuberculous. Collet.

Presse Médicale, Paris

December 28, XX, No. 107, pp. 1081-1088

60 Adrenal Origin of Excess of Cholesterin in the Blood. (L'hypercholestérinémie d'origine surrénale.) J. Troisier and A. Grigaut.

61 Ecchymosis on Sole After Fracture of the Heel Bone. (L'ecchymose plantaire dans les fractures du calcaneum.) H. Mondor.

62 *Application of Electricity to the Neck in Treatment of Epilepsy. P. Hartenberg.

January 1, XXI, No. 1, pp. 1-8

63 Maintenance of Life of Tissues Outside of Organism. (Les étapes des recherches physiologiques sur la vie des cellules et des tissus en dehors de l'organisme.) E. Hédon.

62. **Application of Electricity to the Neck in Treatment of Epilepsy.**—Hartenberg relates the details of several cases out of quite an extensive experience in which remarkable improvement of the epilepsy followed the application of a continuous current of 50 or 60 milliamperes, the electrode fitting like a collar around the neck while the patient sits on the negative plate, each seance lasting half an hour and repeated daily or on alternate days. He emphasizes that the epileptic seizure is nothing but the special way in which the nervous system in these patients reacts to various causes, some of which may be amenable to electric treatment, while others may not. The treatment, therefore, will fail in a certain proportion of cases, but its invariable harmlessness has been fully established, he says. Disturbances in digestion, circulation and nutrition require treatment also at the same time, with hygiene. None of the epileptics whose seizures were arrested apparently by this treatment two and three years ago has had any relapse to date, and this neck electric treatment should at least be given a trial in otherwise rebellious cases. The patients mentioned were women between 22 and 40 and a boy of 16.

Revue de Gynécologie, Paris

XIX, No. 4, pp. 289-400

64 Importance of Developing the Chest in Prophylaxis of Gynecologic Disease. (Étude de menstruations chez des femmes atteintes d'affections gynécologiques.) F. Jayle.

65 Torsion of Cecum and Operative Treatment. L. E. Duroux.

Revue Pratique d'Obstétrique et de Gynécologie, Paris

December, XV, No. 12, pp. 353-376

66 The Mechanism of Abdominal Tubal Abortion. E. Rouffart.

67 *Management of Prolapse of the Umbilical Cord. (Conduite à tenir dans la procidence du cordon ombilical.) A. Guldjoglou.

68 *Uterine Hemorrhages After the Menopause. P. Dalché.

67. **Prolapse of the Umbilical Cord.**—When the umbilical cord presents or there is actual prolapse, the first thing to be done is to relieve the cord from pressure and the next is to deliver the child as soon as possible. The measures necessary vary according as the pelvis is normal or contracted, and with the size of the fetus, the state of the membranes, etc. Twelve typical examples are related to show the various conditions that may be encountered and the best way of remedying them. In two women with deformed pelves and prolapse of the cord Guldjoglou proceeded at once to do cesarean section, with excellent outcome both for mother and child.

68. **Uterine Hemorrhages After the Menopause.**—Dalché remarks that in a few rare cases uterine hemorrhages after the menopause do not mean cancer. Syphilis may be responsible for the hemorrhages and the success of specific treatment may soon clear up the diagnosis, but the physician seldom thinks of the possibility of syphilis. Senile metritis may be benefited by curetting or by dilatation and lavage. Arteriosclerosis and abnormally high blood-pressure contra-indicate ergot in these cases. Opium, calcium chlorid and gelatin, possibly amyl nitrite, may prove useful, as also gelatinized vaginal tampons, tepid irrigation of the vagina and possibly radiotherapy. The general condition should be supervised with special care, with treatment for the heart, liver or kidney affections or gout that may be discovered.

Semaine Médicale, Paris

January 1, XXVIII, No. 1, pp. 1-12

69 Modern Treatment of Bone and Joint Tuberculosis. F. de Quervain.

Archiv für Gynaekologie, Berlin

XCVIII, No. 3, pp. 545-616. Last indexed Dec. 14, p. 2191

70 *Expectant Treatment of Eclampsia. F. Lichtenstein.

71 Elimination of Creatinin and Creatin in the Urine of Parturients. J. Wakulenko.

72 Cause of Certain Anomalies in the Placenta. (Die placentargefässe als Kennzeichen für die Entstehung der Placenta marginata s. extrachorialis.) R. Meyer.

73 The Pituitary Gland During Pregnancy and After Castration in Women and Animals. (Untersuchungen von Hypophysen bei Schwangerschaft und nach Kastration.) W. Kolde.

74 Ovarian Pregnancy. (Fall von Eierstocksschwangerschaft.) O. Serebrenikowa.

75 Tumors in the Abdominal Wall. (Zur Kenntnis der Bauchwandtumoren.) J. Schiffmann.

76 Febrile Abortion. E. A. Björkenheim and Warnekros.

70. **Expectant Treatment of Eclampsia.**—Lichtenstein writes from Zweifel's clinic at Leipsic to extoll the advantages of expectant treatment. In eighty cases there was only 6.25 per cent. mortality, while the statistics from other clinics where more active treatment is given show a mortality of twelve (16 per cent.) in 329 cases. The principle he advocates is the combination of venesection and Stroganoff's prophylactic method. Blood to the amount of 500 c.c. is withdrawn at the onset of the eclampsia, even if the woman has just been delivered. No harm was ever observed from it while it has a twofold beneficial action, reducing the poisons circulating in the body and lowering the blood-pressure. From 41 to 55 per cent. of the total cases showed no influence from delivery on the course of the affection. He insists that the urine should be examined in eclampsia several times a day; it is as important in eclampsia as taking the temperature in other diseases. The mortality of the children is less with this than with other methods of treatment.

Archiv für Kinderheilkunde, Stuttgart

LIX, Nos. 3-4, pp. 161-320. Last indexed Dec. 7, p. 2039

77 The Leukocytes in Healthy Children and at Different Ages. (Die Leukocyten verschiedener Altersstufen. Untersuchungen über die Leukocyten gesunder Kinder.) D. Rabinowitsch.

78 *Operative Treatment of Internal Hydrocephalus in Children. L. M. Pussep.

79 Typhus in Children. (Das Fleckfieber bei Kindern nach dem Material des Morosoffschen Kinderkrankenhauses in Moskau während der Epidemie des Jahres 1911.) A. Molodenkoff.

80 Unusual Combination of Malformations. (Urachusfistel, Nabelstrangbruch und Cryptorchismus bei einem Kind.) D. Lebedev.

78. **Operative Treatment of Internal Hydrocephalus.**—Pussep describes the details of the technic which he has applied in twenty operations on eighteen children and two adults. He calls his method trephinodrainage. It aims to restore the communication between the internal cavities of the brain and the surface. After trephining, the brain is punctured in the occipitoparietal region. The puncture is done with a silver needle 3 mm. in diameter, so constructed that it takes apart into three small tubes. It is introduced until the cerebral fluid begins to flow. Then the superfluous parts of the needle are unscrewed and the end of the needle tube is bent at an angle, after which both flaps of the dura are brought down under the little tube and sutured. The tube thus lies on the free flaps of the dura and can freely rise and fall as it is lifted by the movements of the brain in respiration. The scalp is sutured tight above the tube and the latter is left in the brain for two to four weeks or months, by which time a natural passage has formed around the tube. The effects were favorable in his experience and he commends this technic for almost all cases of hydrocephalus, supplemented by the usual measures which should be energetically applied.

Archiv für klinische Chirurgie, Berlin

C, No. 1, pp. 1-232. Last indexed January 11, p. 166

81 *Removal of Tumors in the Pituitary Gland. (Zur Operation der Hypophysisgeschwülste.) A. v. Eiselsberg.

82 *Regeneration of Bone. (Beobachtungen über Knochenregeneration.) A. Bier. (Neubildungsvorgänge am Hüftgelenk im Anschluss an die Resection.) V. Schmieden and F. Erkes.

83 Exclusion of Pylorus. (Unilaterale Pylorusausschaltung.) H. v. Haberer.

84 *Anesthesia by Blocking the Gasserian Ganglion. (Die Leitungsanästhesie und Injectionsbehandlung des Ganglion Gasseri und der Trigeminusstämme.) F. Härtel.

81. **Removal of Tumors in the Pituitary Gland.**—Eiselsberg's monograph gives a comprehensive review of his experience in sixteen cases, including only three men, forty-seven illustra-

tions showing the preferred technic and the fine ultimate outcome.

82. **Regeneration of Bone.**—Fifteen years ago, in a case of sarcoma, Bier removed the entire shaft of the right humerus and implanted in its place a strip from the tibia, including its anterior margin, the periosteum and the marrow. Roentgenoscopy now shows that the implanted bone has grown to be nearly a normal humerus. The arm is only 1.5 cm. shorter than its mate, and the operation can be considered a brilliant success, as the functioning of the arm is normal. Still more interesting are the findings in the leg, the defect in the tibia having become obliterated by formation of new bone which seems to be analogous in every respect with a normal tibia, even to the sharp edge of the bone in front. Bier theorizes to explain the success in this case, ascribing it mainly to the care that was taken to avoid any compression of the limb by a tight bandage. Blood had accumulated in the cavity left by excision of the front of the tibia, and this blood set up an aseptic inflammation which prevented infection while the blood served as a nutrient medium in regeneration of the bone. When blood is allowed to circulate freely through the tissues, the new-formed bone assumes the shape and structure of the old; when the skin is pressed down into the gap by a compressing bandage there is no chance for natural regeneration of the bone, and there is merely more or less callus production. Bier emphasizes in conclusion that the bone marrow is of greater importance for regeneration of bone tissue than is generally recognized.

84. **Blocking the Gasserian Ganglion.**—Härtel here presents evidence to show the feasibility and advantages of direct injection of the anesthetic or of alcohol into the gasserian ganglion, tabulating the details of a number of major operations in the region and giving forty-five illustrations to explain the simple technic. It permits the gasserian ganglion to be blocked by injection at one point of a small amount of the anesthetic. If done on both sides, the entire domain of the trigeminus is rendered insensible at once and for about ninety minutes. By-effects were noticed in a very few instances, but only during the tentative stage of the technic. Injection of alcohol into the ganglion seems to be physiologically the equivalent of gasserectomy, but as there is a possible danger of neuroparalytic ulceration of the cornea, the method should be reserved for the desperate cases, as injection into the nerve trunk generally suffices. It is possible to inject the anesthetic through the round foramen to act on the second branch. The gasserian ganglion has been blocked for trigeminal neuralgia (4 cases); for gasserectomy (1); resection of the upper jaw (6); operations on the orbit, tongue or pharynx (2 each); on both jaws (3), and for a plastic operation on the face in one case; in fourteen cases for inveterate neuralgia and in eleven cases the trigeminus was blocked for neuralgia and in twenty-seven for resection of the jaws, removal of the tongue or of tumors in the tonsils or nasal septum. Härtel's communication issues from Bier's clinic at Berlin, and the method of nerve blocking in this region is regarded there as a simple operation of great practical value.

Beiträge zur klinischen Chirurgie, Tübingen

LXXXI, V. von Hacker Festschrift, pp. 1-579.

85 *Tuberculosis of the Liver and Its Surgical Treatment. G. Lotheissen.
86 Substitute for Beck's Bismuth Paste. G. Lotheissen.
87 *Burns. (Verbrennungen und ihre Behandlung.) M. Lieber.
88 Access to Tumors in Nasopharynx by Transverse Pharyngotomy. (Die quere Pharyngotomie über dem Zungenbein.) M. Hofmann.
89 Stenosis in Groove After Reduction of Incarcerated Loop of Intestine. (Entstehung von Stenosen an Stelle der Schnürfurchen nach Reposition eingeklemmter Dünndarmschlingen.) M. Hofmann.
90 Isolated Tearing Off of Trochanter Minor. H. Pegger.
91 Polyp Growth in Cystitis. J. Hertle.
92 Transplantation of Fat. J. Zipper.
93 Lengthwise Incision for Resection of Ankle. E. Färber and G. v. Saar.
94 Sliding Hernia of the Large Intestine. (Gleitbrüche des Dickdarmes.) H. Finsterer.
95 *Hernia of the Bladder. (Harnblasenbrüche.) H. Finsterer.
96 *Local Anesthesia for Operations on the Stomach. H. Finsterer.
97 Chronic Vicious Circle After Gastro-Enterostomy, Especially with Incarceration of Loop in Slit in Mesocolon. H. Finsterer.
98 Obstruction of Intestines at Two Points. (Kombinationsileus.) H. Finsterer.
99 *Technic for Spinal Anesthesia. (Unsere Lumbalanästhesie.) H. Helm.
100 *General Ethyl-Chlorid Anesthesia. (Kelennarkose.) H. Peterka.
101 Operations on the Heart. (Die operativ behandelten Herzverletzungen der Grazer chirurgischen Klinik.) H. Schmerz.
102 Tearing Off of Radial Articulation of Humerus. (Fractura capituli humeri partialis.) G. v. Saar.
103 Fracture of Head of the Radius. K. Mulley.
104 Defectively Healed Fractures. (Ueber die mit dem Osteoklasten behandelten, schlecht geheilten Frakturen der Grazer chirurgischen Klinik 1903-12.) F. Ascher.
105 Technic for Treatment of Multiple Fractures of Metatarsal Bones. A. Kirchenberger.
106 *Boring a Rib to Drain Effusion in Pleura. (Behandlung der exsudativen Pleuritis durch Dauerdrainage unter die Haut mittels Durchbohrung einer Rippe.) A. Kirchenberger.
107 *Traumatic Acute Bronchitis. O. M. Chiari.
108 Tumor of Carotid Gland. O. M. Chiari.
109 *Local Tetanus. H. Schmerz.
110 Roentgenotherapy of Surgical Tuberculosis. H. Schmerz.
111 *Direct Sunlight in Treatment of Surgical Tuberculosis. A. Wittek.
112 Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. R. Persch.
113 Treatment of Tuberculosis of the Knee in Children. H. Peterka.
114 *Relapses in Surgical Tuberculosis. H. Peterka.
115 Muscle Plastic Operation on Parasacral Hernia. V. St. John.
116 Abscess in Pouch of Douglas. E. Streissler.
117 Cerebellar Glia Cysts. (Neurologische und chirurgische Mitteilungen über eine operativ geheilte Kleinhirn-Gliacyste.) H. di Gaspero and E. Streissler.

85. **Tuberculosis of the Liver and Its Operative Treatment.**—Lotheissen analyzes thirty-four cases of "conglomerate tubercle" he has compiled from the literature, and thirteen of a tuberculous abscess in or near the liver. In thirty of the cases the tuberculous process was a necropsy discovery. In twenty-three there had been no signs during life of any abdominal trouble. An operation was undertaken in fifteen cases but on an erroneous diagnosis in all but three instances. As long as the process is in an incipient stage or restricted to the inside of the liver, the symptoms are merely those of gastro-intestinal disturbance. Not until the process reaches the surface of the liver or spreads beyond it does its true nature become manifest. It may then appear as a tumor or there may be evidences of irritation of the peritoneum with perihepatic abscesses. The tumor should be removed into sound tissue after intrahepatic ligation of vessels. Wendel has reported the excellent outcome a year later after resection of 940 gm. of liver tissue for an adenomatous growth. The cavity left must be tamponed. Lotheissen emphasizes the necessity for general treatment for the tuberculosis, including exposure to direct sunlight. Complete recovery may be anticipated if treatment is commenced early enough and the patient has the resisting powers of youth and the operation is managed in such a way as not to make too much demands on his strength. Resection of ribs may be necessary, and Lotheissen found it advisable to resect only two or three at a time, thus fractioning the operation; in one case he thus removed separately three cheesy foci, each nearly as large as a man's fist. It has been his experience that patients can stand a very extensive operation for empyema if ample outlet is provided for the pus at the first operation and the operation is completed at several sittings. Local anesthesia with primary ether anesthesia or the "twilight sleep" is ample for the fractioned operation. In ten of the fifteen operative cases the patients recovered although the tuberculous process was far advanced. He warns not to let the propitious hour for operative treatment slip past while trying antisyphilitic treatment.

87. **Treatment of Burns.** Lieber treats burns on the principle that the burned tissues and blood generate a toxin or toxins which are the cause of the general symptoms observed. He reviews the various other theories and the bases for them and the theory of auto-intoxication, and describes his own experience in 188 cases. A temperature below 36 C. was noted in only three cases, but 76 per cent. of the patients developed fever, mostly in the first four days; in forty-eight on the first and in thirty-two the second day. The temperature curve suggests likewise the action of some toxin. It is difficult to foretell the course of the cases; some apparently mild burns proved fatal, and caution is particularly needed in these deceptive mild cases. A child of 4 contracted a burn on the palm of one hand and the sole of one foot, from boiling asphalt. In removing the

asphalt a few whiffs of ethyl chlorid were given. The child seemed lively thereafter and slept normally but it died the sixth day. In another case a young man sat down in a kettle of hot water; the burned buttocks healed readily but the patient died about eighty-one hours after the accident. Such cases confirm the noxious action of some toxin and treatment should aim to expel it. This Lieber accomplishes by saline infusion up to 4 liters a day and saline enemas, having the patient drink copiously water, wine, milk, lemonade, etc., with subcutaneous injection of caffein, camphor and some digitalis preparation. The water-bed, iodoform and morphin have long been discarded in his service. The burn itself is cautiously cleansed with benzin sponges, and boricated vaselin, or a dry powder is applied. The dressings are changed under water. The amount of urine is liable to decline immediately after the burn, but under the above measures it is kept far above normal. Most of the fatal burns were from clothes catching fire. Of the thirty-five fatalities, fourteen occurred the first, eight the second, six the third and two the fourth day after the burn, and three between the sixth and tenth days. Comparison of the outcome shows a much larger percentage of recoveries since the present toxin-eliminating method of treatment was adopted. Many patients now recover as a matter of course who would certainly have succumbed under the older methods of treatment.

95. **Hernia of the Bladder.**—Finsterer has operated for hernia of the bladder in three cases in the last four years and he has compiled forty-nine other operative cases from the literature. The diagnosis is often uncertain and the operator must be on the lookout for the bladder in all operations in this region, to avoid injuring it if it presents in the form of a hernia. In seventeen cases the bladder was injured in this way but no patient died from this cause. Hernia of the ureter is rare.

96. **Local Anesthesia for Operations on the Stomach.**—Finsterer devotes seventy-four pages to his history of this subject, and analyzes his own experience in fifty-five operations on the stomach, including twenty for cancer. The pain from the wound is felt more afterward than with general anesthesia, as the patients' sensibility is more or less deadened with the latter, even after they rouse. They frequently complain that the pain afterward is much worse than during the operation, and morphin may be needed. There is no post-operative vomiting with the local anesthesia, and the factors entailing acute dilatation of the stomach and aspiration pneumonia scarcely ever come into play, or if these occur they are comparatively insignificant. In his fifteen cases of resection there was no fatality from collapse, heart failure or pneumonia. Even when a very little ether is required to complete the operation, the local anesthesia permits painless incision and suture of the abdomen, thus materially reducing the amount of the anesthetic required.

99. **Spinal Anesthesia.**—Helm states that spinal anesthesia has been applied in 1,419 cases at von Hacker's clinic, including 105 in which it failed to work. About 20 per cent. of the patients complained of headache afterward; fever was noted in 30 per cent., and meningitis in six robust young men, one of whom died. Signs indicating direct injury of nerves were noted in 0.1 per cent., including a patient who developed sciatica after an operation for right femoral hernia. Helm wrote to 300 physicians in the districts where his patients resided, to inquire as to the later fate of the patients. He thus learned that 174 (121 men, 53 women) had been under treatment later for disturbances connected with the lumbar puncture, generally headache persisting for one to six months. Others complained of paresthesias and neuralgia in the legs. One man who had been operated on for inguinal hernia presented for a year symptoms resembling the syndrome of tabes and was unable to attend to business during this period. In two cases only there were disturbances in the arms. All the patients finally recovered entirely, but these experiences warn that spinal anesthesia should be restricted to the cases unsuited for other methods; absolute asepsis should be the rule; the tissues should be incised for the introduction of the needle, and the fluid should be drawn extremely slowly, especially if it is under high pressure.

100. **Ethyl-Chlorid General Anesthesia.**—Peterka states that ethyl-chlorid general anesthesia has a mortality record of one to 11,219 in the 100,971 cases he has compiled, and adding five fatalities in his own experience the ratio is one to 8,414. He expatiates on the advantages of this method of anesthesia, especially for minor operations, and appends over seven pages of bibliography.

106. **Drainage of Pleural Effusion Through Rib.**—Kirchenberger bores a hole through the rib at the lowest part of the thorax, the point where the effusion lingers last. The drill used is about 3 mm. thick and the hole is made near the upper edge of the rib to avoid the intercostal artery. An aspiration needle is inserted to be sure that the inner hole passes through the periosteum and the pleura. The skin flap is then replaced and sutured and the effusion is thus automatically drained away. In the ten cases in which he applied this technic benefit was apparent at once and complete recovery soon followed. The operation is a combination of autoserotherapy and drainage of the effusion.

107. **Traumatic Acute Bronchitis.**—In each of Chiari's three cases, after a severe contusion of the chest, the patients coughed a great deal and signs of acute bronchitis speedily developed; there was no exposure to cold or wet as a possible factor.

109. **Local Tetanus.**—Schmerz' patient was a young woman who developed local tetanus, facial paralysis on one side, finally interfering with respiration and entailing death the twenty-eighth day after the wound at which the infection had started. She had tied up the wound with part of the flounce from her petticoat.

111. **Heliotherapy in Surgical Tuberculosis.**—Wittek remarks that the results of heliotherapy demonstrate that general measures are as important for bone and joint tuberculosis as for the pulmonary form.

114. **Relapses in Surgical Tuberculosis.**—In Peterka's 216 cases of manifest surgical tuberculosis the infection had evidently occurred in the majority before the age of 3. Recurrence was observed in eighty-five cases, twice in five cases, and three times in two cases. This shows the importance of general treatment of the tuberculosis and the necessity for prophylactic measures not only against tuberculosis in general—and especially before the age of 3—but also against the flaring up anew of an apparently healed surgical tuberculosis.

Berliner klinische Wochenschrift

December 30, XLIX, No. 53, pp. 2381-2504

118 Gall-Stone Ileus. A. Tietze.
119 Salvarsan in Frambesia. (Ueber Frambösiebehellung durch Salvarsan.) C. A. Koch.
120 Regional Predisposition for Gastric Ulcer. S. Schönberg.
121 Ethylhydrocuprein in Treatment of Experimental Bacterial Infection. R. Levy.
122 Serodiagnosis of Cancer. (Serodiagnostik des Carcinoms nach v. Dungern.) D. Edzard.
123 Some Legal Questions Affecting Physicians. (Aerztliche Rechtsfragen.) H. Lieske.

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December 29, VIII, No. 52, pp. 2095-2140

124 *The Prognosis in Pulmonary Tuberculosis. M. Weisz.
125 Acute Hemorrhagic Pancreatitis; Two Cases. Hellwig.
126 *Neuroses of the Heart. Schurig.

124. **Prognosis in Pulmonary Tuberculosis.**—Weisz emphasizes anew that pulmonary tuberculosis is curable in all its stages, but that the prognosis depends on a number of factors the comparative importance of which it is impossible to estimate in every case. The chances are naturally more favorable for a well-to-do person who can devote time and efforts to getting well. Experience is constantly teaching that the prognosis cannot be drawn with any precision on the basis alone of the objective findings in the lungs. The weight curve shows whether the process is active or chronic or stationary; if the weight remains about the same, no matter how the local process seems to be going, this is a favorable sign if the patient is still in his usual environment. If he is in a hospital or sanatorium this does not apply, as patients may gain in weight in a sanatorium even when the pulmonary process is actively progressing. The temperature curve also may be misleading

unless the individual's normal temperature is known, which is rarely the case. Certain persons have a temperature normally above the standard figure; the hysteric frequently have an afternoon temperature of over 37.5 C. When the temperature can be explained by other causes than the tuberculous process the general condition does not suffer as is inevitable with fever from a tuberculous process. Women and children are liable to have an unstable temperature and tuberculous women are liable to a menstrual or premenstrual rise in temperature, without this being a sign of aggravation of the pulmonary process. There are certain forms of advanced tuberculosis in which after months of subfebrile temperature the temperature may go down to normal or below and stay permanently at this figure. If seen for the first time at this stage, the diagnostician is liable to be misled. The case is cleared up, however, by examination of the urine. The diazo test and the presence of urochromogen throw light on the prognosis, as Weisz has learned by seven years' work in this line. The way in which the urochromogen in the urine rapidly subsides after an artificial pneumothorax is important testimony, he remarks, to the beneficial action of the latter. The constant presence of urochromogen in the urine may be regarded as a bad sign. All his patients who had positive urochromogen findings in their urine have since died. It is a sign that the system has lost its power to resist the onslaughts of the tubercle bacilli. On the other hand, it is possible with the artificial pneumothorax to modify conditions in the general system so effectively that the urochromogen disappears from the urine. Nothing could be more striking testimony to the efficiency of a remedy, he remarks, than to witness under it the subsidence of a symptom which is generally regarded, when constant, as a token of impending dissolution. Another sign useful for the prognosis is the lessening reaction to the Pirquet cutaneous test for tuberculosis; the livelier the reaction the better the outlook, except that, as recovery progresses, the reaction grows less and finally disappears as health returns. With a mild or latent tuberculosis there is generally a distinct reaction to 100 per cent. tuberculin. A distinctly positive reaction with 1 per cent. tuberculin is generally a sign that the organism is making an active struggle against the invading germs. Chronic febrile tuberculosis is generally accompanied by leukocytosis, the expression of the mixed infection which almost invariably becomes installed. The reduction of lymphocytes from the normal proportion of 25 per cent. to 15 per cent. and below must be regarded as a sign of serious impairment of the resisting powers. The leukocytes are a powerful aid in the battle with tubercle bacilli and a reduction in their numbers is a most unfavorable symptom. Reduction of the eosinophils is also an unfavorable sign, although there are many cases of tuberculosis with normal numbers of both leukocytes and eosinophils. The Arneth blood picture demands too much time and effort for it to become a routine diagnostic measure, but Weisz' research has shown that as the disease progresses the nuclear substance either disappears or degenerates. The urochromogen test is applied to urine diluted to one-third and separated into two equal portions. To each half is added three drops of a 1 per thousand solution of permanganate, and the tint is compared with the untreated half. A pure distinct yellow is the positive reaction.

126. **Treatment of Heart Neuroses.** Schurig gives minute directions for the application of the high frequency current; he has found it extremely useful in cardiac neuroses, when strictly individualized. Systematic breathing exercises are also of great benefit, especially, he states, his method of five deep breaths, then after a pause the five deep inspirations and expirations are repeated, with a little pause at the end of each inspiration and expiration, a pause long enough for the patient to count slowly up to five or more. These breathing exercises slow the heart beat by four, ten or more beats. Repeating the exercise then, after an interval of five or ten minutes may reduce the heart beat still further. With a very weak heart, or severe arteriosclerosis, caution is necessary. The effect can be magnified by holding the upper part of the chest so that it cannot expand while the diaphragm makes its downward excursion. This frees the heart from the organs pressing against it while it presses down the viscera, aiding in regulating bowel action. In every case of a cardiac neurosis he urges careful examination of the thyroid. He has had three extremely nervous and irritable patients who showed no signs of exophthalmic goiter except that the thyroid was slightly larger than normal. In each case one erythem dose of the Roentgen rays, distributed over three sittings, had a most excellent effect. The women became more tranquil and almost all their disturbances subsided. Stoney has also reported fine results from Roentgen exposures of the thyroid in cases of supposed neurasthenia with symptoms resembling those of exophthalmic goiter. Her experience includes forty-eight cases of exophthalmic goiter in which the Roentgen rays were applied. In conclusion Schurig urges that systematic rest cures and outdoor reclining should be applied more systematically in treatment of cardiac neuroses, as these neuroses reveal some possible slight tendency to weakness which can most effectually be combated by the rest cures.

Münchener medizinische Wochenschrift

December 24, LIX, No. 52, pp. 2849-2904

127 Negative Pressure in the Long Bones of the Dog. (Beitrag zur Physiologie des Venenkreislaufes.) E. O. P. Schultze and B. J. Behan.
128 Research on Muscles with Aid of Filament Galvanometer. (Muskelstudien mit dem Saitengalvanometer.) A. Gregor and P. Schiller.
129 Serodiagnosis of Tumors. (Serodiagnostik der Geschwülste mittels Komplementablenkungsreaktion. III.) E. v. Dungern.
130 Relations Between Chronic Appendicitis and the Female Pelvic Organs. A. Mueller.
131 *Operative Treatment of Spastic Paralysis by Stoffel's Method. A. Stoffel (Mannheim). Concluded in No. 53.
132 Curability of Otogenous Meningitis. R. Kotz.
133 Microchemical Stain for Fat. (Dimethylamidoazobenzol als mikrochemisches Reagens auf Fett, insbes. über seine Verwertbarkeit zu kombinierten Färbungen in der Mikroskopie des Magen- und Darminhaltes.) A. Friedliger.
134 Fitness for Military Service and Enteroptosis. (Militärtauglichkeit und Enteroptose.) H. Röder.
135 *Epidemic Hemorrhagic Diathesis. (Anglorhexis alimentaria.) J. Pick.
136 Diagnosis of Peptic Ulcer. (Zur Diagnose der peptischen Geschwüre im Magen und im Duodenum.) H. Westphalen.
137 Arsenic Poisoning After Salvarsan. (Schwere Arsenikvergiftung nach Salvarsaninfusion.) Elchler.
138 Venesection Plus Saline Infusion in Treatment of Skin Disease. (Die "Organismusauswaschung" bei Hautkrankheiten.) C. Bruck.

December 31, No. 53, pp. 2905-2928

139 *Serotherapy of Melena Neonatorum. R. Franz.
140 Action of Digitalis on Different Forms of Heart Disease. T. Schrenk.
141 *Relief of Disturbance in Swallowing from Disease of the Larynx. (Zur Beseitigung der Schluckbeschwerden bei Larynxerkrankungen.) V. Hinsberg.
142 Chisel Resection of Bone. (Zur Knochenchirurgie.) R. Chiarolanza.
143 Care of the Teeth in the Army. (Zahnpflege im Heere.) J. M. Muller.
144 Laparotomy in the Home. (Zur Laparatomie im Privathaus.) K. Stern.
145 *Technic for Taking the Temperature. (Wie erreichen wir stets gleichmässig genaue Temperaturmessungen?) Heermann.
146 Spring Extension for the Leg. (Federextension an der unteren Extremität.) F. Schöneberg.
147 *Technic for Treatment of Phlegmon on the Arm. Haun.
148 *Spiral Wire to Remove Diphtheric Pseudomembranes. (Einfaches Instrument zur Entfernung diphtherischer Membranen.) A. Strangmeyer.
149 Technic for the Epiphanin Reaction. C. v. Angerer.
150 Operative Treatment of Spastic Paralysis. (Technik meiner Operation zur Beseitigung der spastischen Lähmungen.) A. Stoffel. Commenced in No. 52. See Abstracts 131 and 154.

131. **Operative Treatment of Spastic Paralysis.** Stoffel gives minute details and directions for performing his operation on the nerve of the region, severing certain of its fibers but leaving enough intact to balance the antagonist muscle as it regains strength under exercise and massage. (His method was described in THE JOURNAL, 1911, lvii, 2168.) He urges careful practice on the cadaver beforehand as the text-books have not yet made a thorough study of transverse section of nerves. Once master of the technic the operation will be found comparatively simple and easy while it cannot do harm when properly done. Deep general anesthesia is necessary. When the nerve is exposed for 3 or 4 cm. the different fibers are touched with a needle electrode carrying a current so weak that the innervated muscle barely twitches. The contracted muscle responds more readily than normal muscle, which is a distinct

advantage as it is thus possible to sift out with an extremely weak current the special nerve fibers involved. His technic is based on the principle that muscular contracture is the result of a loss of muscle balance; the spastic muscles lord it over the antagonists. Treatment must aim to reduce the strength of the spastic muscle while reenforcing the strength of the antagonist. He discusses each form of spastic contracture in turn, and explains the special technic for each with four illustrations and a number of pictures of patients "before and after." In case of pronation contracture of the forearm, for example, he exposes the median nerve by an incision 8 or 10 cm. long, beginning just below the bend of the elbow and following the course of the biceps muscle. Any veins in the way are ligated; no large vessels are encountered. The nerve shows as a white tract, well defined from the rest of the nerve, and separating in two branches. The main tract is what innervates the three muscles involved in the contracture; the pronator teres, flexor carpi radialis and palmaris longus. This nerve tract will always be found in the proximal third of the wound and the anterior radial margin of the nerve trunk. This main tract and its branches are then loosened up from the tissue below and one branch after the other is lifted up with forceps and touched with the needle electrode. The muscle which the fiber innervates twitches in response. Thus instructed the tract innervating the muscle involved in the contracture is worked loose from the point where the nerve disappears behind the pronator teres upward for a distance of 5 or 7 cm. or more. The nerve bundle is then severed in case of severe contracture, or only part of the fibers. He never leaves the fibers innervating the flexor carpi radialis entirely intact, as this is the most powerful of the muscles involved in pronation. The method was first worked out for treatment of talipes equinus and pronation contracture after long study of the structure of nerves and recognition of the separate individuality of the fibers controlling separate muscles. (See Abstract 154.)

135. **Epidemic Hemorrhagic Diathesis.**—Pick states that thirty-three men and one woman, in the Saaz district, developed a syndrome closely resembling both scorbutus and Werlhof's disease but differing from each in certain respects. Pick ascribes this alimentary angiorhexis, as he calls it, to a lack of vegetables in the diet. Two of the patients died, one a habitual drunkard, from debility, the other from pneumonia.

139. **Serotherapy in Melena Neonatorum.**—Franz says that thirty-five cases were encountered at the Graz clinic, 1900-1911, with a mortality of 52.9 per cent. No drugs have proved effectual in treatment, and even gelatin cannot always be depended on. Since the introduction of serotherapy, however, the outcome has been far more favorable, as is evidenced in the five cases reported in detail. The delivery had been normal and the mothers had shown no signs of a hemorrhagic diathesis. Two of the mothers had had acute tonsillitis not long before, and it was noted that the number of cases of melena increased materially during an epidemic of infectious sore throat. All the infants recovered after injection of 10 c.c. of serum centrifugated from blood drawn from the maternal stump of the umbilical cord and kept from one to four months in dark glass, sealed vials in a dark and cool room. A few drops of chloroform had been added to each vial. The warmed serum was injected under the skin in the thigh or buttock, and the injection was repeated once or twice at need. No by-effects were observed and the general condition began to improve at once.

141. **To Relieve Disturbances in Swallowing in Disease of the Larynx.**—Blocking the nerve in the region with alcohol is the most effectual means of treating disturbances in swallowing. Where this is not practicable, Hinsberg says that great relief may be obtained from a sedative powder shaken on the tongue and swallowed dry.

145. **Taking the Temperature.**—Heermann ensures uniformity in the findings by having the thermometer for the rectum made with a bulging portion which has to be pushed in beyond the sphincter before the thermometer will stay in place. He thinks that lack of uniformity in taking the temperature technic was the reason why such a long period had to elapse before the value of tuberculin treatment was duly appreciated.

147. **Treatment of Phlegmon on the Arm.**—Haun makes a row of three or five lengthwise incisions, 5 cm. long, in the sound tissue above the phlegmon, cutting down to the fascia. He then separates the skin from the fascia and works a broad strip of iodoform gauze through under the skin from one incision to the other. This is done entirely around the arm. The phlegmon is arrested and no appreciable scars are left, he says.

148. **To Draw Out Deep-Seated Pseudomembranes.**—Strangmeyer has sometimes succeeded in clearing out the air passages in diphtheria, when all else had failed, by introducing a wire 0.3 mm. in diameter, wound into a close spiral about 4 cm. long, the diameter of the spiral not over 4 mm. It is introduced through the outer cannula after removal of the inner tube, and the tip is worked like a corkscrew into the obstructing membrane, which can be drawn out with it. He has an assortment of these spirals of various sizes, and many an apparently doomed child has been saved by this simple means.

St. Petersburger medizinische Zeitschrift

December 28, XXVII, No. 24, pp. 353-368

151 Neurologic Indications for Operations on the Brain. O. Stender.
152 Chronic Inversion of the Uterus. W. Beckmann.
153 Pseudoleukemia. E. Wulff.

Therapeutische Monatshefte, Berlin

December, XXVI, No. 12, pp. 841-912

154 *Treatment of Spastic Conditions. (Neue Wege und Erfolge der Behandlung spastischer Zustände.) A. Stoffel.
155 Artificial Pneumothorax. (Technik und Indikation des künstlichen Pneumothorax.) H. Königer.
156 Vegetable Diet in Infant-Feeding. (Gemüsekost im Säuglingsalter.) L. Langstein and K. Kassowitz.
157 Disease of Lacrimal Apparatus. (Behandlung des Tränens.) L. Pick.
158 Operations on the Interior of the Nose. (Operationen an den Nasenmuscheln nach neueren rhinologischen Prinzipien.) A. Rethi.
159 Propaganda for Reform. (Der ärztliche Bezirksverein München.) (Geheimmittelschwindel in der Tierheilkunde.) (Apotheker-Polemik.) W. Heubner.

154. **Prevention and Treatment of Spastic Contracture.**—Stoffel's work in this line is reviewed above (abstr. 131). He here discusses the special indications for his method and emphasizes that the after-treatment is extremely important. Any neglect in the home later is liable to compromise the effect of the operation. Correctly performed and with the suitable aftercare it is sure to succeed in correcting spastic contracture of the forearm, both the flexed and extension types, pronation and flexed contracture of the hand, contraction of the fingers or thumb, adduction contracture of the thigh, flexed and extension contracture of the leg, talipes equinus, contracture of the toes, etc. He has always been impressed with the small part played in the contracture by the shriveling of the tissues. Even the most extreme pes equinus, adduction contracture of the thigh, pronation contractures, etc., can be reduced almost completely during general anesthesia. This shows the spastic nature of the contracture and that operations to lengthen the tendons are superfluous. When shriveling is a factor in the contracture, this element soon subsides under gentle exercise after the spastic element has been eliminated. Stoffel's research suggests certain points in prophylaxis of contractures in general. Among them is the experience that contracture can be induced in any musculature by keeping the muscle permanently in the contracted position. Any of the muscles in a limb may become spastically contracted if placed and kept in the attitude of the contracture. Persons with Little's disease and cerebral hemiplegia invite contracture by the way they lie in bed: the hands in pronation, the thighs pressed together, the weight of the bed clothes forcing the feet into the pes equinus shape, etc. Munk found that monkeys kept in the cages after removal of part of the cortex developed contracture while those kept outside and forced to exercise escaped the contractures. These experiences confirm the necessity for watching over patients as soon as cerebral hemiplegia, Little's disease or apoplexy has been diagnosed, not letting their limbs lie in any abnormal position and not letting them stay long in any one position. The extremities must be carefully guarded against heavy and tight clothing; the bedding must not be allowed to bind down the feet. The weight of the bed clothes should be supported

by a "cradle" and the limbs should not be allowed to fall by their own weight into certain positions and stay in them long. A block of wood or sandbag placed against the soles of the feet will keep the foot in the normal right-angled position and prevent a tendency to talipes equinus. Pronation and flexion contracture of the hand can be averted by placing the arm in the proper position over a bran cushion. The patient must not be allowed to lie in abnormal positions in bed, especially with the thighs and knees drawn up much, or else the hip joint and knee may become the seat of severe contracture. This is also liable if the buttocks are allowed to sink deep into the bed. He combats this by supporting the buttocks with a bran cushion. The position of the limbs must be systematically changed several times a day, and they should be passively moved several times a day and the patients should be constrained to exercise them occasionally. This can be accomplished with small children by tickling, etc. These precautionary measures require much time, effort and patience, but the patient gets up without the distressing contractures otherwise liable. The contracture once installed, gentle measures applied systematically several times a day to correct the contracture may perhaps accomplish the purpose in very mild cases; forcible measures only enhance the tendency to spastic contracture. The contracture corrected, the limb is fastened thus in a splint, aiming to separate the points of attachment of the contracted muscle and bring closer together the points of attachment of the abnormally relaxed antagonist, striving to reduce the over-elasticity of the contracted muscle and restore elasticity to the flabby antagonist. With severe contracture, operative treatment gives the only prospect of relief. Three methods are applicable: tenotomy, section of the spinal roots and Stoffel's own technic. Recurrence and over-correction are frequent after tenotomy, and section of the roots is too serious an operation, but his own technic, which he has applied in almost a hundred cases, has given extremely satisfactory results and others have reported similar success with it.

Therapie der Gegenwart, Berlin

January, LIV, No. 1, pp. 1-48

160 Lipoid Compounds of Arsenic. (Ueber eine neue Klasse von lipoiden Arsenverbindungen.) E. Fischer and G. Klemperer.
161 *Hyperacidity. H. Lüthje.
162 *Direct Application of Oxygen in Treatment of Intestinal Diseases. (Weitere Erfahrungen über die Behandlung von Darmkrankheiten mit Sauerstoff.) A. Schmidt.
163 Brain Tumors; Sixty-Three Cases. (Zur operativen Therapie der Hirntumoren.) K. Bonhoeffer.
164 After-Treatment of "Scrofulous" Children. Sippell.
165 *Wedge Resection of Ribs to Reduce Size of Thorax in Treatment of Pulmonary Tuberculosis. M. Wilms.
166 Roentgenotherapy for Uterine Myomas. P. Strassmann.
167 *Can the Protection of a Patent Be Granted to Living Bacteria? (Behandlung der Tuberkulose mittels lebender Tuberkelbacillen.) F. Klemperer.

161. **Hyperacidity.**—Lüthje states that his extensive experience has convinced him that the best results are to be obtained by restricting the diet to milk and vegetables in the form of the Lenhartz diet, but without the meat. The symptoms of hyperacidity disappear on this diet with surprising regularity, avoiding permanently vegetables with much residue, and not returning to meat for months, and then very cautiously, dropping it again at the first sign of trouble. The modified Lenhartz course allows only two eggs and 200 c.c. milk the first day, increasing daily by one egg and 100 c.c. milk to the eighth day when the daily ration is eight eggs; 40 gm. sugar; 900 c.c. milk; 200 c.c. rice cooked in milk, and 20 gm. rolls; no butter. By the thirteenth day, the daily ration consists of eight eggs; 50 gm. sugar; 1,000 c.c. milk; 300 gm. cooked rice; 80 gm. rolls, and 40 gm. butter. The menu is continued thereafter on the same principle of a residue-poor, meat-free, predominantly carbohydrate diet. No skill is required for the preparation of this diet, and it has a curative action at the same time on any tendency to gastritis or ulcer while it supplies ample nourishment. Another advantage of this diet is that the stools can be examined any day without further preliminaries for occult hemorrhage. If milk is not tolerated, he substitutes oatmeal gruel but tries to have the milk gradually incorporated in the diet in some way without the patient's knowledge until the milk can be openly resumed. It is thus possible with tact and patience to break the reflex chain and ensure tolerance for other articles on the menu which the patient may think he is unable to digest. Psychotherapy and persuading the patient to change to more rational habits of life and thought are important adjuvants. Mild laxative mineral waters may be permitted, but no drugs; the bowel functioning generally regulates itself on the above diet. The vegetables allowed after the second or third week are spinach, cauliflower, soft mashed carrots, pea soup and tender young peas; also strained apple and plum sauce. With the above measures it is easy to keep the tendency to hyperacidity under control, but a final cure is difficult to attain as the causes of the hypersecretion are often beyond our reach.

162. **Insufflation of Oxygen in Treatment of Intestinal Disease.**—Schmidt's favorable experiences in the line of sterilizing the intestines by insufflation of oxygen were mentioned in THE JOURNAL, Feb. 10, 1912, p. 451. He here reports his further experiences to date, all sustaining his former assertions in regard to the remarkable way in which the oxygen modifies conditions in the intestines so that the morbid tendencies subside and normal conditions are restored, checking putrefaction and fermentation and thus permitting the healing of catarrhal conditions and curing dyspepsia. Small doses have a direct bactericidal action while large doses, by inducing transudation, actually promote the growth of bacteria, but the cleansing thus induced has eventually a curative influence. In disease of the duodenum, gastrogenous diarrhea, fermentation dyspepsia and catarrhs, he insufflates the oxygen by the mouth into the duodenum, through a duodenal tube, thus injecting daily 500 c.c. or even more. If it is difficult to introduce the duodenal tube, he contents himself with insufflation into the stomach, as Rotky has found that oxygen passes rapidly into the duodenum. With disease in the large intestine, he makes the insufflation through the rectum. He cites a few typical examples to show the surprising efficacy of this method of treating intestinal affections and adds that he has found it beneficial also in dyspepsia in infants. Here he introduces 100 or 200 c.c. of oxygen into the stomach and also into the rectum. In nine infants thus treated the effect was an entire success in six cases, and dubious in another. Ulcerative colitis and similar destructive lesions are naturally as rebellious to the oxygen treatment as to other measures. The mild catarrhal affections and dyspepsias respond most readily.

165. **Wedge Resection of Ribs for Compression of Lung.**—Wilms discusses the indications for and results of operative measures to reduce the size of the thorax in treatment of pulmonary tuberculosis. He compares in particular the conditions with resection of ribs and with artificial pneumothorax, and reports the results obtained by the wedge resection in twenty-four cases. He regards it as a comparatively simple operation while the results in appropriate cases are remarkable. It may sometimes usefully supplement an artificial pneumothorax when the latter has not proved entirely successful. Its special indication is a tuberculous process in one upper lobe, with a tendency to shriveling, but little if any involvement of the lower lobe, when the tuberculous process shows a progressive tendency, with recurring hemoptysis, profuse secretion and distinct cavity formation, the lesion threatening speedy involvement of the lower lobe.

167. **Can Living Bacilli Be Patented?**—Klemperer states that Friedmann's application for patent protection on his turtle bacilli is very comprehensive; he seems to seek to monopolize the entire field of the treatment of tuberculosis with living bacilli. He claims "discovery," and the application speaks of the "discoverer applicant," which Klemperer regards as rather far-fetched. What was it Friedmann "discovered?" Turtle bacilli? Friedmann was the first one to find them, but any one else can find them now by looking for them. Will he claim patent protection on all the bacilli found on turtles henceforth? And the methods of cultivating, attenuating, etc., these bacilli—the technic familiar to every bacteriologist—will Friedmann claim patent rights over these? Application for a patent on living cultures of bacteria is "something new under the sun," and the outcome of the application will be awaited with interest.

Virchows Archiv, Berlin

December, CCX, No. 3, pp. 321-475

168 Changes in Appendix in General Infection and Peritonitis. K. Sugi. Commenced in No. 2.
169 Metastatic Tumors in the Spleen. (Ueber metastatische Geschwulstbildung in der Milz.) P. Geipel.
170 Blastoma in an Eel. (Zur vergleichenden Pathologie der Geschwülste.) B. Wolff.
171 Chordomas. (Ueber Chordome unter gleichzeitiger Mitteilung eines Falles von seltener Grösse.) Hässner.
172 Disease of the Blood-Vessels of the Spleen. (Blutgefässerkrankungen der Milz.) P. Geipel.
173 Staining of Glandular Organs. (Versuch einer Anwendung der Unna-Pappenheim'schen Färbung an drüsigen Organen.) R. H. Jaffé and W. Löwenfeld.
174 Senile Depressions in the Skull. (Zur Kenntnis der "senilen" grubigen Atrophie an der Aussenfläche des Schädels.) H. Chiari.
175 The Fibrin in Gall-Stones. (Bedeutung des Fibrins im Gallenstein.) H. Kuru.
176 Tuberculosis of the Hypophysis. H. Heidkamp.

Zeitschrift für klinische Medizin, Berlin

LXXVI, Nos. 5-6, pp. 375-499. Last indexed Nov. 23, p. 1940

177 Slanting Upper Aperture of the Thorax. (Neigung der oberen Thoraxapertur.) G. W. Schiele.
178 Complement Content in Body Fluids. (Untersuchungen über den Gehalt an Komplement in normalen und pathologischen Flüssigkeiten des Körpers.) S. Mutermilch and R. Hertz.
179 Serious Consequences of Chronic Spastic Constipation. (Ernsthafte Folgezustände der chronischen spastischen Obstipation. K. v. Noorden.
180 Pneumonia in Brazil. (Pneumonia in Rio de Janeiro und Pneumococcicae bastardae.) A. Austregesilo.
181 Aortic Insufficiency. (Zur Frage des diastolischen Herzstosses, des diatolischen akzidentellen Tones und des Dikrotismus des Pulses bei Insuffizienz der Aortenklappen.) N. D. Strasenesko.
182 The Trypsin-Secreting Capacity of the Pancreas. (Zum klinischen Studium der Trypsinabsonderungsfähigkeit des Pankreas. W. Orlowski.
183 Ulnar Neuritis Following Typhoid. (Zur Kasuistik der Erkrankung des N. ulnaris nach Unterleibstyphus.) B. M. Dolgopol.
184 Spinal Injections of Pituitary Gland Extract. (Lumbale Hypophysiainjektionen.) R. Hoffmann.

Zeitschrift für Urologie, Berlin

December, VI, No. 12, pp. 967-1121

185 Cancer of the Testicle. (Ueber die bösartigen einfachen Geschwülste des Hodens.—Karzinom, Sarkom, Adenokarzinom.) A. Vecchi. Commenced in No. 10.

Grèce Médicale, Athens, Greece

November 15, XIV, Nos. 21-22, pp. 41-44

186 History of Bulgarian Yoghurt and Its Predecessors in Antiquity. (Etude de l'origine du lait caillé oriental.) M. Moïssidès.

Gazzetta degli Ospedali e delle Cliniche, Milan

December 26, XXXIII, No. 155, pp. 1625-1632

187 The Blood-Picture in Chicken-Pox. (Osservazioni citologiche nella varicella.) E. Mensi.

December 29, No. 156, pp. 1633-1648

188 Syphilitic Lesions in the Central Nervous System. (Sifilide cerebro-bulbare.) V. D'Amico.

Semana Medica, Buenos Aires

December 5, XIX, No. 49, pp. 1161-1220

189 Treatment of Wounds. (Como deben ser tratadas las heridas para que no supuren, o detener la supuracion en el caso que esta se haya producido.) J. A. Blaksley.
190 Water, the Universal Beverage. (De Ingesta, El agua, universal bebida.) V. Delfino.
191 Eugenics. (Una nueva ciencia.) V. Delfino.
192 Physico-Chemical Theory of Life. (Notas de plasmogenia.) A. L. Herrera.
193 Research on the Ora Serrata. L. G. Ortin.
194 Psychanalysis. (Aplicaciones de las Teorias de Freud.) W. F. Waugh (Chicago).

Hospitalstidende, Copenhagen

December 25, LV, No. 52, pp. 1549-1572

195 Case of Congenital Stenosis of the Aorta. C. D. Bartels.
196 *Operative Cure of Tendovaginitis with Stenosis at the Styloid Process of the Radius. (2 opererede Tilfaelde af. Forsnaeving af første Senekulisse ved Processus styloideus radii.) T. Petersen.

196. Painful Tendon Affection at the Styloid Process of the Radius.—The above title does not accurately designate the affection first described by de Quervain in 1895; the trouble itself is more easily defined. The patient gradually finds it more and more difficult to use one hand on account of pain in the region corresponding to the styloid process of the radius, the pain extending down into the thumb and up into the arm. The pain is elicited especially by adduction and abduction of the thumb and interferes particularly in finer movements of the thumb, picking up a needle, for instance, while larger articles can be grasped without pain. The dorsal aspect of the styloid process is tender and a stretch corresponding to the first groove for attachment of the tendon. Nothing else pathologic can be found and no benefit is derived from persevering conservative measures. Under general anesthesia an incision was made down into this first groove in one of the typical cases reported. As the incision was made the edges sprang forcibly apart and the tendon bulged out, as if it previously had been held down by a tight band. Neither the groove, the tendon nor adjoining tissues showed any sign of inflammation. The operation frees the patients at once and permanently of all disturbances from this cause. Petersen reports two cases, and others have reported similar experiences, de Quervain in thirteen cases, Flöreken in two and Poulsen in ten. Marion reported in 1903 six somewhat similar cases, only he found the region swollen, and some exudation, and his patients were all cured by blisters and a compressive dressing. In the other cases on record no benefit seems to have been derived from conservative measures. The most frequent cause is supposed to be excessive use of the hand or thumb, or special strain; it is possible that gout or chronic articular rheumatism may be incriminated. The diagnosis is easy if the possibility of the affection is borne in mind. It was called by de Quervain fibrous tendovaginitis with stenosis, but the essential feature of the affection seems to be merely a lack of proportion between the size of the tendon and of the groove that gives it attachment. The immediate and permanent subsidence of all pain and tenderness after the operation apparently excludes an inflammatory process, or if such is observed it is maintained by a kind of vicious circle. After failure of conservative measures an operation is justified but it is not necessary to resect the groove; mere slitting it seems to answer the purpose and this might be done subcutaneously. The thumb should be exercised as soon as possible after the operation to prevent adhesion between the tendons and adjoining tissues.

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197 *Office Treatment of Leg Ulcer. (Gleerup's ambulatoriske Behandling af Ulcus cruris.) K. Nørregaard.

197. Treatment of Leg Ulcers.—Nørregaard states that he has applied in 560 cases of varicose ulcers on the leg a simple office treatment which has given constantly satisfactory results, curing in many instances ulceration of many years' standing. In one case the patient had spent so much time in bed on account of his ulcer that it totaled several years out of his life. The main point is the wearing of an elastic bandage all the time, just as a person subject to hernia wears his truss. The next essential is to keep the leg clean and free from chemicals. The physician must carefully instruct the patient in the right way to keep the leg clean. He ascribes his success in large part to this careful instruction of the patient. The elastic bandage is made of loosely twisted cotton woven over long strands of rubber, the whole forming a soft, elastic webbing. It is applied to expel the blood and is drawn as tight as the patient can bear and worn as close to the skin as the secretions permit. At night the bandage is removed and a compress moistened with dilute silver nitrate or boric acid solution is applied. In the morning the ulcer and its environment are rinsed off with pure cold water or dilute boric acid solution. Then the ulcer is covered with thin rubber tissue cut out a little larger than the area of the ulcer and dipped in cold water, then with the elastic webbing, not drawn too tight. If the secretions do not soak through too much, the bandage is not removed till night. Any spots on the bandage can be washed off with soap and water and a nail brush, and the bandage can be dry for the morning. The bandage is preferable to an elastic stocking as it fits better and permits evaporation and ventilation of the skin. The ulcers heal generally in six or seven weeks; sometimes large ulcers heal more quickly than small. Nørregaard queries why the leg and the stomach seem to suffer most from ulcers, and he answers his query by pointing to the influence of gravity. Treatment must aim to relieve the lesion from the influence of gravity. He has his patients return about twice a week and each time the cleansing process is repeated until he is convinced that the patient can attend to it properly himself.